Deschutes National Forest

WINTER

Winter Recreation Sustainability Analysis

Deschutes National Forest
August 5, 2009

Prepared by Independent Resources Enterprise Team

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Executive Summary

Increasing urbanization, population growth and demand for access to recreation have made providing opportunities for quality winter recreation a challenge on the Deschutes National Forest. With abundant snow, good access and outstanding scenery, the Deschutes is a popular winter recreation destination for residents of central Oregon and the Pacific Northwest. Visitors participate in a variety of traditional winter activities including downhill skiing, snowmobiling, cross-country skiing, snowshoeing, dog sledding and snow play. In addition, emerging activities such as snowmobile-assisted skiing (hybrid skiing), snowcross and kite skiing are becoming increasingly popular. The challenge for the Deschutes National Forest is to provide quality winter recreation opportunities that meet visitor needs and protect natural resources now and in the future.

The winter recreation sustainability analysis considers the social, environmental and managerial components of providing winter recreation opportunities that meet visitor's needs, protect resources and are within the forest's management capacity. Information from existing laws, policy and regulations, a demand analysis of trends affecting winter recreation in Central Oregon, and data gathered about visitors' values for winter recreation opportunities and resource protection informed this analysis. Winter recreation opportunities across a range of settings on the forest are identified. For each setting, indicators of desired future condition for quality winter recreation opportunities are identified. These indicators will help managers determine appropriate management inputs and actions to move the winter recreation program toward the desired future condition.

An analysis of key issues is also part of this document. The issue analysis includes:

- Parking capacity
- Solitude and quiet recreation
- Dogs and winter recreation
- Impacts to other resources

Key strategies for moving the Deschutes toward a sustainable winter recreation program include:

- Understand visitor use patterns, demand and satisfaction.
- Provide adequate parking across the forest.
- Consider management alternatives for Dutchman Flat.
- Protect opportunities for solitude and self-reliance.
- Provide dog-friendly winter recreation areas.
- Provide alternative transportation to non-motorized use areas on the Cascade Lakes Highway.
- Institute minimum snow depth for over-snow vehicles.
- Build monitoring into daily winter recreation management.
- Continue to build constituent support for the recreation program.
- Provide management for winter recreation that is commensurate with use.

Introduction

The Deschutes National Forest is one of the premier winter recreation destinations in the Pacific Northwest. From downhill skiing and snowboarding at Mt. Bachelor to hundreds of miles of snowmobile, cross-country ski and snowshoe trails, the forest provides a wide variety of winter recreation opportunties to residents of nearby communities and visitors from other parts of Oregon, Washington and California.

The Cascade Mountain Range provides an exceptional scenic backdrop for winter recreationists. The mountains also help provide the area with some of the most consistent, easily accessible snow conditions in the state. Because of unique geographic and climatic conditions, visitors have access to outstanding winter recreation opportunities on the Deschutes National Forest.

The forest is categorized into three primary recreation settings: Alpine Summit, Recreation Hub and High Desert (Figure 1). Winter recreation on the Deschutes National Forest is concentrated primarily on the east slope of the Cascade Range and in the vicinity of Newberry National Volcanic Monument. These areas lie within the Alpine Summit and Recreation Hub areas. The High Desert area is not suitable for winter recreation, primarily due to lack of adequate snow cover.

The Alpine Summit setting is located along the crest of the Cascade Mountains. High peaks such as Mt. Jefferson and the Three Sisters are dominant features and much of setting is designated Wilderness. The interior of the Alpine Summit is inaccessible to all but the hardiest adventurers during winter months. Areas closer to sno-parks and trailheads offer primarily day use opportunities for backcountry skiing, mountaineering, hybrid users (use of snow machine as transportation for non-motorized activity) and snowmobiling outside Wilderness. Most of the Alpine Summit setting provides opportunities for primitive and backcountry experiences.

The Recreation Hub setting offers more developed and concentrated day use opportunities. Developed ski areas, groomed snowmobile and ski trails, and marked snowshoe trails provide users with easy access and infrastructure for enjoyment of diverse winter recreation activities. Long distance and loop trails allow visitors to access the backcountry.

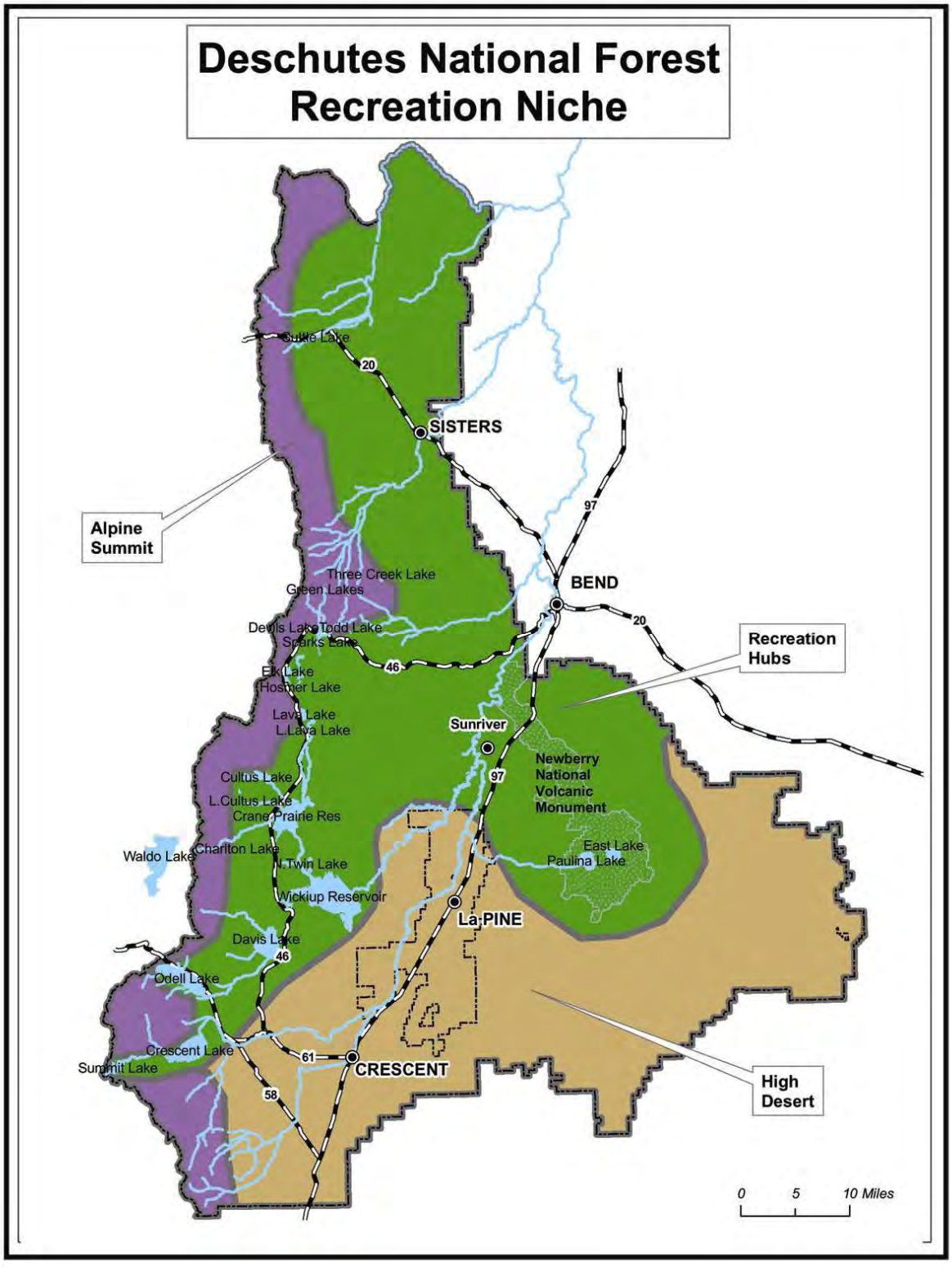
As winter recreation use increases on the forest, the Deschutes wants to continue to provide high-quality outdoor recreation opportunities in a sustainable manner. The goals of the winter recreation sustainability analysis are:

- Determine appropriate areas for winter recreation opportunities forest wide.
- Identify strategies to manage winter recreation opportunities sustainably.

Background

Winter recreation opportunities on the Deschutes National Forest have been a primary attraction for central Oregon since the 1960s. Consistent snow, alpine scenery and easy access transform the Cascade Mountains into a winter wonderland. Mt. Bachelor ski area began operations in the late 1950s and cross-country skiing and snowmobiling use along the Cascade Lakes Highway steadily increased into the 1990s.

Beginning in the 1990s, a population boom in Bend and central Oregon led to dramatic increases in winter recreation use on the forest, particularly along the Cascade Lakes Highway. As Bend's population grew, smaller communities such as Sisters, Redmond, La Pine and Crescent also saw increased immigration. Winter recreation areas (such as Newberry National Volcanic Monument, Three Creek, Santiam Pass and southern parts of the forest) accessed from these communities also saw increasing


Deschutes National Forest
Recreation Niche
Suttle Lake
20
SISTERS
Alpine
Summit
97
Three Creek Lake
Green Lakes
BEND
Devils Lake
Todd Lake
Sparks Lake
20
Recreation
Hubs
46
Elk Lake
Hosmer Lake
Lava Lake
L.Lava Lake
Sunriver
Newberry
National
Volcanic
Monument
Cultus Lake
L.Cultus Lake
Crane Prairie Res
97
Waldo Lake
Charlton Lake
N.Twin Lake
East Lake
Paulina Lake
Wickiup Reservoir
La PINE
Davis Lake
46
Odell Lake
Crescent Lake
Summit Lake
61
CRESCENT
58
High
Desert
0
5
10 Miles

use, although not as dramatically as the Cascade Lakes corridor. Coupled with this increasing use, several low snow years in parts of the Pacific Northwest led recreationists to seek better winter recreation opportunities on the Deschutes. Once winter recreation on the Deschutes was "discovered," recreationists continued to come to central Oregon.

In addition to the increase in sheer numbers of recreationists, technology has enabled more users to easily access areas that were previously difficult to reach. Both motorized and non-motorized equipment has undergone significant technological improvements. Lighter and smaller snowshoes are driving a large increase in demand for snowshoe trails. Alpine-touring (AT), telemark, and split-board advancements have allowed more skiers and snowboarders to find their own way up and down the mountains. Snowmobiles have dramatically changed in performance and function allowing even novice users to travel over snow in almost any surface conditions. Avalanche safety equipment has improved and become more intuitive and accessible. These and other changes have dramatically influenced use patterns of winter recreationists. Terrain that was difficult or inaccessible 20 years ago is now easily reached.

Increased visitation has led to parking 'bottlenecks' at some sno-parks, creating safety issues to visitors. For example, Dutchman Flat Sno-park is the highest sno-park on the Deschutes National Forest; it is also one of the smallest. Due to its elevation, it is very attractive for early and late season use, but also for good quality snow in mid season. Most of the congestion is due to limited high demand and limited parking capacity. Although crowding at this and other parks is common during peak use, Dutchman has been the spearhead for winter recreation tension on the forest.

The Deschutes National Forest also has a large number of recreationists who choose to recreate with dogs. These recreationists include dog sledders, skijorers, and others who are looking for a place to exercise themselves and their animals. While dog sledders are able to use groomed snowmobile trails with the required free permits, dog owners who are looking to snowshoe or ski with their pets on groomed non-motorized trails have limited options. This is a user group that appears to need expanded opportunities.

In April of 2004, the forest hosted the 'Dutchman Summit' in order to build understanding and foster dialogue about winter recreation issues on the forest. Members of the public, including local user groups, attended two workshops where they expressed strengths and weakness of the winter program as well as submitted ideas for improving user experiences. The outcome of the Summit was that snowmobile use was restricted in the Dutchman Flats corridor and on portions of Tumalo Mountain. This outcome was then further negotiated by the Oregon State Snowmobile Association (OSSA) to allow a 23-acre play area on the south end of Dutchman Flats. The final plan had several restrictions for both motorized and non-motorized travel within the congested area.

Sustainability

The Forest Service mission is to "sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations." The Forest Service Strategic Plan states: "To achieve sustainability – the capacity of forests and grasslands to maintain their health, productivity, diversity, and overall integrity – the agency will integrate environmental, social, and economic issues and values into its management decisions and actions while accounting for future as well as present needs."[1] Recreation management implications are found in four of the seven Strategic Plan goals:

- Provide and sustain benefits to the American people
- Conserve Open Space
- Sustain and Enhance Outdoor Recreation Opportunities

[1] USDA Forest Service Strategic Plan, FY2007-2012

- Engage Urban America with Forest Service Programs

Sustainable recreation management is about providing recreation opportunities in a way that meets the needs and desires of people today without affecting the ability to meet the needs of future generations. Three dimensions – social, environmental, and economic/managerial – shape visitors' interactions with the land. They are interrelated and each dimension affects how well the others contribute to sustainability. Finding a balance among the three dimensions is often difficult and requires flexibility and adaptability.

The social dimension of sustainability includes the degree to which visitor, community, and society needs are being met. It includes factors such as visitor use and demand, values for recreation experiences, public health and safety, community stability, social acceptability and quality of life. Many people experience nature through recreation and develop personal connections with the land that ultimately support sustainability.

The environmental dimension of sustainability includes the protection and conservation of resources and settings for current and future generations to enjoy. Recreation use inevitably impacts resources to some extent. It is the responsibility of land managers and constituents to understand the degree to which impacts are acceptable for recreation to be sustainable.

The managerial (or economic) dimension of sustainability includes the financial and custodial inputs necessary to ensure fiscal responsibility of a recreation program that is socially and environmentally sustainable. Appropriated funds are leveraged with fees, partnerships, and other funding sources to meet visitor needs and protect resources.

Planning for a sustainable recreation program combines scientific and technical expertise with public values and interests to reach a shared vision for the future (desired future condition). A key part of agreeing upon the shared future vision is an understanding of the current situation. The situation analysis includes questions such as:

- Social – Who are our current and future visitors? What kinds of recreation opportunities do they value? What recreation opportunities can the forest provide better than anyone else?
- Environmental – How does recreation impact natural resources? What are the acceptable conditions for visitor use, and how do we achieve them?
- Economic/Managerial – What are the barriers to managing recreation sustainably? What is the appropriate mix of resources, including partnerships, to achieve a sustainable program?

Need for Winter Recreation Sustainability Analysis

The focus of the Winter Recreation Sustainability Analysis is on the social conditions that support quality recreation experiences. As the number and variety of users continues to increase, the Deschutes has a responsibility to plan for and manage recreation opportunities so users can reasonably attain desired experiences sustainably into the future. By focusing key recreation activities in key settings, the forest will set the stage for providing a range of recreation opportunities in appropriate areas. Conversely, managing for a sustainable winter recreation program requires the forest to make choices about not providing some recreation opportunities in certain areas because they do not contribute to sustainability. Ultimately, managing for a sustainable winter recreation program requires that visitor needs are balanced with environmental impacts and managerial capacity.

A sustainable winter recreation program considers the degree to which recreation impacts are acceptable or unacceptable, and implements appropriate mitigation measures to ensure ecosystem viability. All winter recreation use on the Deschutes will comply with existing laws, regulation and policy related to resource management and protection. Federal laws such as the Wilderness Act, the Endangered Species

Act and the Clean Water Act provide direction for resource management on federal lands. Further, the Deschutes LRMP and Northwest Forest Plan set specific management area standards and guidelines related to recreation (Appendix A). Details of management policy and guidance are not repeated in this document.

The Deschutes already has good relationships with diverse stakeholder organizations and is well poised to manage the winter recreation program to meet the needs of current and future visitors. The forest has a small and dedicated workforce that is effective at leveraging limited resources to get work done. Because of the active outdoor lifestyle in Bend and other communities adjacent to the forest, potential support from volunteers, partners and other stakeholders is high. Expanding partnerships and volunteer programs is a high priority for managers to creatively leverage limited capacity. In order for the forest to sustainably provide the diversity and quality of experiences that forest users' desire, proper planning and management strategies need to be implemented and monitored.

Planning Framework

The winter recreation sustainability analysis uses the Recreation Opportunity Spectrum planning framework to evaluate visitor use and potential impacts on the environment. This framework addresses recreation planning issues by recognizing different types of desired recreation experiences, identifying issues associated with recreation use, identifying indicators that represent important resource and social conditions, and outlining desired conditions for a range of recreation opportunities[2].

Planning Steps

1. Identify public values for winter recreation.
2. Determine issues.
3. Describe existing winter recreation opportunities.
4. Determine indicators and standards for social, resource and managerial conditions.
5. Determine desired future condition for winter recreation opportunities (ROS classes).
6. *Conduct site specific analysis as needed[3].*
7. *Monitor and evaluate.*

Information Gathering

The winter recreation sustainability analysis was informed by multiple data sources. First, existing laws, regulations and policies were reviewed to determine restrictions on winter recreation opportunities (see Appendix A). Next, existing information sources such as the Deschutes recreation niche, recreation focus group interviews, and sense of place mapping were reviewed. Finally, visitor surveys, values workshops, and key informant interviews were used to establish public values for winter recreation. A demand analysis of winter recreation trends in central Oregon was also conducted.

The following is a summary of information sources and how they are used in the winter recreation sustainability analysis:

- **National Visitor Use Monitoring (NVUM) -** The Deschutes participated in the first round of NVUM in fiscal year 2002. The second round took place during fiscal year 2008 and that data will not be available until mid-2009. Snowshoeing and other winter activities were not listed as separate activity choices. NVUM information was incorporated in the demand analysis to describe current visitors and predicted future growth in winter recreation.

[2] McCool, Clark, and Stankey, 2007. *An Assessment of Frameworks Useful for Public Land Recreation Planning.*

[3] Steps 6 & 7 are not a part of this document.

- **Sense-of-Place Mapping -** In 2003, the forest participated in sense-of-place mapping of central Oregon. Twelve areas encompassing federal, state, tribal and private lands were identified and described in terms of their functional, geographic and cultural relationships to communities and visitors. Sense-of-place areas were used to help identify desired winter recreation opportunities across the forest.

- **Dutchman Summit -** In April of 2004, the Deschutes convened a summit of winter recreation users to discuss the future of Dutchman Flat Sno-park and the surrounding area. The result of the summit was the current management plan for the Dutchman Flat area. The Dutchman Summit notes were used to identify values, issues and desired winter recreation opportunities across the forest.

- **Focus Group Interviews -** In June and July of 2004, the Deschutes contracted with university researchers to conduct focus group interviews of central Oregon residents' use of the forest. Interviewers asked participants about favorite recreation activities, constraints to participations, likes and dislikes of the forest, the role of forests in central Oregon, and the benefits of forests in central Oregon. Focus group interviews were used to identify values, issues and desired winter recreation opportunities across the forest.

- **Winter Recreation Surveys** – In conjunction with the FY2008 NVUM surveys, a winter recreation survey was conducted during the 2007-2008 winter season. The survey identified visitor characteristics, use patterns, perceptions and preferences. Surveys were collected at sno-parks along the Cascade Lakes corridor from December to March. Survey results are contained in a draft report titled "Winter Use Recreationists at the Deschutes National Forest: A Survey of Characteristics, Behaviors and Perceptions." The Executive Summary from this report is located in Appendix B. Winter recreation surveys were used to identify values, issues and desired winter recreation opportunities across the forest.

- **Values Meetings -** In January of 2008, forest employees representing recreation, wildlife, natural resources and management met to identify values for winter recreation. In March of 2008, members of the Deschutes Trail Users Group (TUG) met to identify values for winter recreation. The notes from these meetings are located in Appendix C and D. Values meetings were used to identify values, issues and desired winter recreation opportunities across the forest.

- **Interviews -** From March to May of 2008, forest staff, recreation user group members, and community members participated in semi-structured interviews about winter recreation opportunities and challenges on the Deschutes. Interviews were conducted with 14 forest employees representing recreation, resources and management. Interviews were conducted with 10 people representing recreation users such as snowmobiling, cross-country skiing and skiing with dogs, and community members including outfitter-guide permittees, local business owners and Bend Parks and Recreation. The summaries of these interviews are located in Appendix E and F. Interviews were used to identify values, issues and desired winter recreation opportunities across the forest.

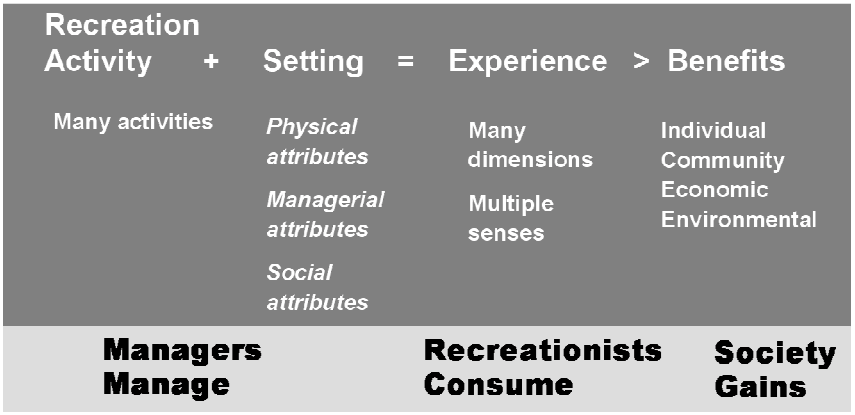
- **Supply and Demand Analysis** – An analysis of recreation supply and demand in central Oregon and its effects on winter recreation participation on the Deschutes National Forest was conducted. The full demand analysis is located in Appendix G. The supply and demand analysis was used to identify values, issues and desired winter recreation opportunities across the forest.

Existing Winter Recreation Opportunities

Visitors perceive recreation as more than activities such as snowmobiling, skiing, and snowshoeing. People choose a specific setting for a given activity in order to realize a desired set of experiences. For example, backcountry skiing in untracked snow in a remote setting may offer some visitors a sense of solitude, challenge, and self-reliance. In contrast, marked and groomed trails in an area with facilities and amenities may offer comfort, security, and social opportunities for other visitors.

Figure 1 illustrates the components of a recreation opportunity. The left side of Figure 1 shows that the combination of activities and settings influences recreation outcomes. The right side of Figure 1 shows experiences and benefits, or the outcomes of providing recreation opportunities. Examples of desired outcomes include enjoying nature, spending time with family and friends, or testing skills in the backcountry and come from public input from a variety of sources including market research (NSRE, NVUM, Census, SCORPs) and visitor feedback (surveys, interviews, focus groups).

Figure 1. A recreation opportunity.



Winter Recreation Settings

As mentioned above, winter recreation on the Deschutes occurs in two broad settings: Alpine Summit and Recreation Hubs. A range of recreation opportunities is found within these two settings; however, the Alpine Summit setting has less developed opportunities (primitive, semi-primitive non-motorized, semi-primitive motorized) while the Recreation Hubs setting has more developed opportunities (roaded natural, non-motorized social, motorized social, rural) . Specific areas of concentrated winter recreation use are described below.

The Existing Condition ROS map (Appendix H) depicts the current management scheme for winter recreation on the Deschutes. The existing condition inventory used traditional criteria as described in the 1986 ROS Users Guide.

Alpine Summit

The Alpine Summit lies along the crest of the Cascade Mountains. Its peaks provide the scenic backdrop for Central Oregon communities. Five wilderness areas comprise most of the Alpine Summit: Mt. Jefferson, Three Sisters, Mt. Washington, Diamond Peak and Mt. Thielsen. Non-wilderness areas are typically non-motorized or have limited accessibility to motorized use. Most of the Alpine Summit area provides opportunities for challenging backcountry experiences.

Traditional backcountry skiers access areas within designated Wilderness from sno-parks along the Cascade Lakes Highway, McKenzie Highway and Santiam Pass. These users are seeking opportunities to challenge themselves in areas with steeper terrain and untracked snow away from crowds and other users. Much of the interior of designated Wilderness (more than 5 miles from a sno-park), particularly on the north and south ends of the forest, receives little to no use in the winter. Areas in the Three Sisters Wilderness accessed from sno-parks along the Cascade Lakes Highway and Three Creek Sno-park tend to have moderate to heavy use.

Non-Wilderness areas in the Cascade Lakes/Three Creek corridor also receive moderate to heavy use. The majority of use is from backcountry skiers and hybrids who use snowmobiles as a form of access to reach remote areas more quickly. These users are seeking opportunities to get away from the crowds and challenge themselves in an undisturbed setting. Some marked trails offer access into the backcountry, but no trails are maintained and users must rely on their outdoor skills when traveling in the winter.

Currently winter recreation use in Wilderness outside the Cascade Lakes/Three Creek area is very light. Distance from population centers and less challenging terrain make these areas less popular. There is some backcountry skiing in the Mt. Washington and Three Sisters Wilderness areas accessed from McKenzie Pass on the north side of the forest. These areas offer opportunities for solitude and connection with the natural world.

Recreation Hubs

The Recreation Hubs are the heart of Central Oregon recreation opportunities where staging areas and facilities provide access to close-in trails for cross-country skiing, snowshoeing and snowmobiling. The heaviest winter recreation use occurs along the Cascade Lakes corridor. However, other popular recreation hubs including Newberry National Volcanic Monument (NNVM), Crescent, Sisters, and Santiam Pass offer similar opportunities.

Over the last decade, Bend has become the recreation hub for central Oregon. With consistent snow, outstanding scenery and easy access from town, the Cascade Lakes corridor is the major winter recreation destination on the Deschutes. From well-marked cross-country ski and snowshoe trails where users can develop their skills and recreate with friends and family to long-distance and loop trails that provide access to vast expanses of backcountry to both snowmobilers and skiers, the Cascade Lakes corridor offers a wide range of winter recreation opportunities. However, users seeking a lack of crowds and little noise must travel several miles away from sno-parks to get away from other users. The Mt. Bachelor ski area and Elk Lake Resort offer amenities and supplies. Several outfitter-guides take visitors on guided snowshoe, cross-country ski and snowmobile tours.

To the southeast of Bend, the incredible scenery of NNVM attracts many winter recreationists. While use is not as heavy as the Cascade Lakes corridor, Six Mile and Ten Mile Sno-parks provide access to over 100 miles of snowmobile trails and nine miles of Nordic trails. In contrast to dog-free cross-country ski areas on the north side of the Cascade Lakes corridor (Meissner, Swampy), dogs are allowed on ski trails in NNVM. The Paulina Lodge has amenities and supplies and an outfitter-guide takes visitors on snowmobile tours of NNVM.

The community of Sisters is quickly becoming another hub for winter recreation on the Deschutes. McKenzie Pass and Three Creek Lakes are the primary winter recreation areas accessed from Sisters. McKenzie Pass receives light use, primarily from snowmobilers recreating on the cross-district trail. Upper and Lower Three Creek Sno-parks are alternative to the Cascade Lakes area and use is moderate. Snowmobilers access Moon Mountain and play areas outside and adjacent to the Three Sisters Wilderness. Backcountry skiers access the Wilderness and some use snowmobiles as transportation to

reach the Wilderness boundary. An outfitter-guide also transports skiers to the Wilderness boundary via snowmobile.

Winter recreation on the north side of the forest is influenced by the Willamette Valley. The Corbett Sno-park on the Deschutes, and the Ray Benson Sno-park and Santiam Snow Play Area on the Willamette National Forest provide access to Santiam Pass. The Hoodoo Ski Area is also on the Willamette. Approximately 70 miles of motorized and Nordic trails are available in the Santiam Pass area. Winter recreation use is moderate to heavy. Cross-country skiing occurs primarily on designated trails while snowmobilers use trails and open areas for motorized snow play. To the east of Santiam Pass, the Suttle Lake area has approximately 20 miles of cross-country ski trails and winter recreation use is light.

The town of Crescent is a hub for winter recreation on the southern part of the forest. High lakes such as Crescent and Odell are accessed from Junction and Crescent Lake Sno-parks. Snowmobilers have outstanding opportunities for backcountry snowmobile riding on long-distance trails, but there are few opportunities for motorized snow play. To protect bald eagle nesting habitat, a closure limits winter use on and adjacent to Davis, Wiciup Reservoir and Crane Prairie Reservoir. Several Nordic trail systems near Highway 58 offer opportunities for beginner and intermediate skiers to build their skills.

Resorts and Outfitter-Guides

There are 7 resorts on the Deschutes that stay open year-round. These resorts offer opportunities for overnight visitors to experience the winter backcountry without the skills and equipment to camp in a harsh environment. Often, they are a destination for people recreating for the day and provide a place for fuel, supplies and a hot meal. During the winter, these resorts are the only source of civilization once recreationists leave the sno-parks. Table 1 shows existing resorts and the services they offer.

Table 1. Resorts on the Deschutes National Forest.

Resort	Location	Amenities	Activities
Mt. Bachelor Resort	Bend-Ft. Rock RD	Parking, lodge, restaurants, ski lifts	Downhill skiing, cross-country skiing
Crescent Lake Lodge	Crescent RD	Restaurant, gas, laundromat, groceries, cabins, snowmobile rentals	Groomed snowmobile trails, cross-country skiing, snowshoeing
Elk Lake Resort	Bend-Ft. Rock RD	Restaurant, cabins, snowmobile rentals, snowcat shuttle service	Groomed snowmobile trials, cross-country skiing, snowshoeing, downhill skiing (Mt. Bachelor)
Lodge at Suttle Lake	Sisters RD	Restaurant, cabins and lodge rooms, spa	Snowmobile and cross-country ski trails nearby
Odell Lake Lodge	Crescent RD	Restaurant, cabins and hotel rooms, cross-country ski and snowshoe rentals	Groomed cross-country ski trails, snowshoeing, downhill skiing (Willamette Pass)
Paulina Lake Resort	Bend-Ft. Rock RD	General store, restaurant, cabins	Groomed snowmobile trails, groomed cross-country ski trails, snowshoeing
Shelter Cove Resort	Crescent RD	Cabins, general store, cross-country ski and snowshoe rentals	Groomed cross-country ski trails, snowshoeing, downhill skiing (Willamette Pass)

Winter outfitter-guide use on the Deschutes occurs primarily in the Cascade Lakes area, Three Creek Lake area, and NNVM. Visitors are able to participate in a variety of guided winter activities including snowmobiling, snowshoeing, and cross-country skiing (Table 2). Outfitter-guides also offer avalanche education courses and motorized access to non-motorized areas that are difficult to access in the winter.

Table 2. Winter Outfitter-Guides on Deschutes National Forest[4].

Permit	Winter Activity	Area of Operation	District (administered)	User Days	Details
Silver Striders	non-wilderness snowshoe and hiking	various locations	Multi-district (Bend)	1144	772 (Bend) 372 (Sisters)
Three Sisters Backcountry Access	snowmobile, ski, avalanche education	Sisters RD (Three Creeks)	Sisters	???	
Timberline Mountain Guides	climbing, ski mountaineering, avalanche education	Forest wide	Multi-district (Zig-Zag-Mt. Hood)	20	
Central Oregon Adventures	snowmobile	all snowmobile trails west of Bend	Bend	1500	(have used up to 2,500)
Paulina Tours	snowmobile	Newberry Crater area	Bend	600	
Wanderlust	snowshoe	Bachelor and Kapka Butte	Bend	2000	(last year used 4530)
Bend Parks and Rec	snowshoe, nordic	various	Bend	3000	
COCC	snowshoe, nordic	various	Bend	3,000	
Wolftree	non-wilderness snowshoe and hiking	Sisters RD (No map provided)	Sisters	250	temporary
Northstar	limited winter use	various locations	Bend	400	
OMSI	very little winter use		Bend	4500	
SOAR	snowshoe	Sisters and Bend RD	Sisters	250	priority
Total (12 permitees)				**16664**	

Both resorts and outfitter-guides provide visitors to the Deschutes National Forest a unique opportunity. While many recreationists have the knowledge, skills, and equipment necessary to participate in winter recreation activities, resorts and outfitter-guides are able to assist those who are not specialized winter recreationists. Visitors who are unfamiliar with the area, terrain or winter conditions may not feel comfortable venturing into the backcountry on their own. Resorts and outfitters-guides provide safety, skill development, and conveniences to those visitors.

[4] Notes: Timberline Mountain Guides has requested an additional 50 user days in the Three Creeks drainage. User days for Three Sisters Backcountry Access are not available.

Values for Winter Recreation

Adjacent communities and visitors have a strong connection to the Deschutes National Forest and the winter recreation opportunities it provides. These connections translate to values, or the meanings that people associate with a particular recreation experience. Understanding community and visitor values helps managers determine what social, environmental and managerial conditions are appropriate and acceptable for different types of recreation experiences.

Social

Community values for winter recreation on the Deschutes are closely tied to issues such as quality of life, healthy citizens, a vibrant economy, and environmental stewardship. The Bend 2030 Community Vision, for example, discusses goals for connecting the city with adjacent wildlands, and promoting citizen wellness and access to parks and natural areas. All of the communities surrounding the Deschutes use recreation opportunities on the forest to promote tourism and attract visitors. Communities in central Oregon benefit from the variety of winter recreation opportunities and natural settings on the Deschutes.

Visitors' preferences for winter recreation span a range of values. Indeed, every person who recreates on the Deschutes is influenced by his or her individual and group experiences. As people congregate with like-minded individuals, common values emerge. Ultimately, these values represent the positive experiences that visitors receive from winter recreation opportunities.

For Deschutes winter visitors, common values include:

- Connecting with and being in nature
- Access to a variety of winter recreation opportunities
- Socializing with family, friends, and others they encounter on the trail
- Challenge and physical exercise
- Getting away from the regular routine

In addition to common values, there are differences among user groups' values for winter recreation. Key differences are highlighted below:

- Snowmobilers value the ability to easily access endless miles of powder on well-marked trails. The challenge of the sport and recreating with friends and family is important.
- Cross-country skiers and snowshoers value easy access to areas with well-marked trails and without motorized use. Physical exercise in a non-mechanized setting is important.
- Backcountry skiers, snowboarders and snowmobile-assisted skiers value exploring remote areas with undisturbed powder. Solitude and challenge in a non-mechanized setting is important.
- People who recreate with their companions dogs value groomed cross-country ski trails in a non-mechanized setting.

Most current winter visitors who recreate along the Cascade Lakes corridor feel that the expansiveness of the Deschutes is large enough to accommodate all users. The 2007-2008 winter recreation survey indicated that 80.2% of the visitors rated their experience 8 or higher on the 10-point satisfaction scale. Although some crowding occurs at sno-parks, visitors value opportunities for dispersal on trails and in backcountry areas. Less than 10% of visitors felt moderately or extremely crowded at sno-parks. Interviews and the values meeting confirmed that few visitors feel the number of either motorized or non-motorized users adversely affects the experience they seek. As one interview respondent stated, it is important for all recreationists, particularly those who are new or inexperienced, to get out on the forest in the winter.

Environmental

While communities rely on the Deschutes for quality of life and economic viability, they also depend on the forest's natural resources such as clean air, clean water and wildlife habitat. In the Bend 2030 Community Vision, "A Quality Environment" describes Bend as a community defined by and connected to its unique natural environment. Many communities adjacent to the Deschutes recognize that providing opportunities for winter recreation must be balanced with protecting the natural resources that sustain their inhabitants.

For many visitors, environmental values are closely associated with the social experiences they receive while recreating on the Deschutes. According to the International Snowmobile Industry Association, two of the top five reasons people snowmobile are related to the environment: view scenery and be close to nature. Similarly, almost all survey respondents said the reason they recreate on the Deschutes was to be outdoors (96%) and to experience natural surroundings (93%). Several interview respondents stated that sustainability of resources is important to them. This indicates that connecting with nature is very important to winter visitors and, therefore, protecting and enhancing the natural environment is important.

Managerial

Visitor values for national forest management inputs are not often well understood. On the Deschutes, however, several interview respondents and values meeting participants specifically mentioned the positive relationship with the Forest Service as something they value. Visitors also value on-the-ground presence and dedication by forest staff. Visitors' values help determine which managerial actions they will support[5]. Because of this, the Deschutes National Forest staff has an opportunity to find solutions that are based on multiple common values.

Winter Recreation Issues

Although enjoying winter recreation is often viewed as a way to escape daily pressures and renew ones spirit, it is not immune from the social, political and legal environment in which people dwell. In fact, problems facing recreation planners and managers are often messy due to the turbulence and uncertainty that surround them[6].

Social

Differences in visitors' values for recreation experiences are at the core of recreation planning and management issues. These differences in values often lead to conflict between user groups. Recreation conflict is inherently a social impact where a person's perceptions and expectations of a recreation experience define what that experience means to them. For some, quiet, solitude, and a peaceful setting are the definition of a quality recreation experience. For others, adventure, thrill, and challenge are what make the recreation experience acceptable. In many cases, the same setting attracts different user groups with different expectations of an acceptable recreation experience. Generally, these differences in expectations manifest as 'conflict' in areas where non-motorized and motorized users share the same geographic area[7]. Often, these are not simply cases of one activity versus another, but of how different

[5] Borrie, Freimund, and Davenport, 2002, *Winter Visitors to Yellowstone National Park: Their Value Orientations and Support for Management Actions.*

[6] McCool, Clark, and Stankey, 2007. *An Assessment of Frameworks Useful for Public Land Recreation Planning.*

[7] Jackson and Wong, 1982. *Perceived Conflict between urban cross-country skiers and snowmobiles in Alberta.*

people value and define their recreation experiences, and how they differ in their perceptions of what are acceptable experience conditions.

For many recreationists, the setting is not merely the physical landscape. Specific places offer recreationists the opportunity to achieve the goals they have set for a desired recreation experience. The social environment and managerial actions influence the way in which the place is experienced by recreationists[8]. Conflict, then, may be greater for recreationists who are attached to a particular recreation setting.

The 2008 Winter Survey highlights some of the social issues associated with winter recreation. For example, many survey respondents feel that the forest is not providing adequate parking for increasing recreation demand. By far, the most important need expressed by those recreationists was for more parking capacity (67.6% rated extremely important). While most visitors were satisfied, 56% of non-motorized respondents said that some winter activities are more disturbing than others. In general, non-motorized visitors are more disturbed by motorized use than by other non-motorized users.

Conflict on the Deschutes is relatively low but does occur in these areas:

- Providing adequate parking for all users. Sno-parks along the Cascade Lakes Highway are often full or overflowing at peak use times. Use is increasing across the forest and visitors want adequate parking to accommodate current and future use.
- Providing and maintaining opportunities for quiet recreation. Many non-motorized visitors, whether they are seeking a solitude or social experience, want opportunities to recreate in areas where motorized use does not occur and cannot be seen or heard.
- Providing opportunities for recreating with dogs. Some non-motorized visitors want opportunities to ski or snowshoe with their dogs in areas where motorized uses do not occur and on groomed non-motorized trails.
- Maintaining opportunities for recreating without dogs. Other non-motorized visitors do not want dogs on designated ski trails because dog prints can cause damage to ski tracks and owners who do not control or pick up after their dogs.
- Providing and maintaining opportunities for snowmobile riding on and off trails. Motorized visitors want to ensure they have opportunities to snowmobile in desirable areas of the forest along a system of well-maintained trails and in open play areas near sno-parks.

Environmental

Impacts to resources from increasing winter recreation use on the Deschutes are a concern for both managers and visitors. Although visitors accrue many benefits from recreating on the forest, recreation also creates impacts to air and water quality, to wildlife and their habitats, and to special areas such as Wilderness and inventoried roadless. While some impacts from recreation can be diminished through careful planning and design, others are difficult to mitigate. Any additional recreation use on the forest has to be balanced with long-term effects to natural resources. Environmental issues include:

- In areas that currently provide continuous habitat for flora and fauna, the primary habitat fragmentation concerns are related to the infrastructure that supports winter recreation use such as new facilities, roads or trails. There are both direct and indirect effects to habitat disturbances. Direct effects include physical habitat destruction where vegetation and sessile organisms are destroyed or damaged. A change in habitat along the edges of fragments is also likely. The remaining

[8] Gibbons and Ruddell, 1995. *The Effect of Goal Orientation and Place Dependence on Select Goal Interferences Among Winter Backcountry Users.*

habitat is reduced and/or fragmented into smaller patches. Indirect effects may include introduction of non-native or invasive species and facilitation of off-trail use into areas or terrain with sensitive species and/or habitats.

- Recreation use may stress wildlife and affect their ability to meet basic needs. A major concern is how the year-round presence of humans impacts wildlife. As recreation use increases and becomes more prevalent in the winter, wildlife may have a reduced ability to cope.

- Water quality issues associated with winter recreation are mainly associated with motorized use. Many snowmobile exhaust byproducts are known carcinogens and tend to accumulate in the surrounding snowpack which then leach into water supplies. Effects of snowmobile emissions on water chemistry are not well understood. The few existing studies show that impacts by snowmobile emissions, although present, are below levels which would likely harm humans or aquatic systems. Forest order DES-2003-04 restricts uses in the Bend Municipal Watershed area to maintain a safe water supply for the city of Bend.

- Winter recreation impacts to air quality are related to combustion engine pollution emissions. Emissions occur when users are driving to the sno-park or winter trailhead and again when motorized users recreate on their machines. One study suggests that running a two-stroke engine for 7 hours emits more pollutants than running a modern car for roughly 100,000 miles[9]. Snowmobiles that utilize four-stroke technology have much better emissions than two-strokes. The Clean Air Act directs land managers to ensure that air within class 1 airsheds is not degraded beyond background levels. Effects of emissions on surround air quality are determined by large and micro scale meteorological events. Studies indicate that frequent and large numbers of snowmobile activity relate directly with increases in airborne pollutants but not enough to cause human health risks.

- Winter recreation impacts to Wilderness are related to human disturbance of natural areas. The Wilderness Act defines Wilderness as "an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain." While winter recreation is an acceptable use in Wilderness, it has the potential to affect Wilderness qualities. Moreover, there is a history of documented illegal motorized use within Wilderness areas on the Deschutes. Most incursions occur in the Three Sisters Wilderness area from Ball Butte to Tam MacArthur Rim and where easily accessible snowmobile areas are adjacent to Wilderness.

- Roadless areas contain much of the most contiguous and un-fragmented habitat on the forest outside of Wilderness. Winter recreation impacts to roadless are associated with building and maintaining new trail systems. There are currently no restrictions on building or maintaining authorized motorized or non-motorized trails within roadless areas. However, some see these lands as potential wilderness areas while others would like to see more diverse recreation opportunities offered in roadless areas.

- Compacted snow from skiers and snowmobiles may alter snow densities and snow to water equivalents. Compacted snow can reduce winter habitat for small mammals surviving underneath the snow[10]. Micro-topography plays an important role in determining how much space is available and how winter recreation impacts affect these habitats over space and time.

[9] CEPA 1999; California Environmental Protection Agency 1999; Fact Sheet -- New Regulations for Gasoline Engines http://www.arb.ca.gov/msprog/marine/facts.pdf (accessed 03-15-2008)

[10] Sanecki, Green, Wood, Lindenmayer, 2006, The implications of snow-based recreation for small mammals in the subnivean space in south-eastAustralia.

Managerial

The forest cannot accommodate increasing use with current funding and staffing levels. There is a strong reliance on the knowledge and experience on long-term employees. As these employees retire or move to other positions, their collective knowledge is difficult to replace. At the same time, changing dynamics between the forest and its communities has put a greater emphasis on collaboration. This translates into an increased reliance on volunteers and partnerships to deliver recreation opportunities. Some employees have not been trained to manage partnerships and others find it difficult to focus on collaborative efforts because they have multiple duties.

Many employees recognize that the winter recreation program is resource intensive due to the safety and liability concerns of working in a winter environment. The majority of trails and facilities on the Deschutes support non-winter recreation opportunities[11]; however, the winter program is primarily dispersed and requires heavy on the ground presence to enforce existing boundaries and regulations. Appropriated funding does not cover all the costs of signing and patrolling boundaries, maintaining signs and markers on winter trails, and coordinating partnerships to assist with program delivery.

Managerial capacity issues include:

- Lack of staffing for winter program. Staffing for the winter program is not at a level to manage for quality recreation opportunities. While the forest relies heavily on volunteers and partners to deliver the winter program, inadequate staffing hinders employees' abilities to take full advantage of these partnerships.

- Lack of funding for the winter program. Recreation use on the Deschutes occurs year-round and winter use is as heavy as summer use. Winter use also tends to be more concentrated because access and snow availability limit where visitors can go. Forest employees estimate that 75% of the forest's recreation budget goes for summer program management while only 25% goes to winter program management.

Indicators and Standards

The next section, Desired Future Condition, outlines the desired physical, managerial and social aspects of the winter recreation opportunity settings on the Deschutes. Indicators are specific elements of the biophysical or social setting selected to represent the conditions deemed appropriate and acceptable in each opportunity class. However, it is not possible to measure every indicator for each opportunity class so one or two *key indicators* represent the overall desired condition. Monitoring of these key indicators allows managers to determine how well the desired future condition is being achieved and if any management actions are necessary.

Standards are the maximum permissible conditions that will be allowed in a specific opportunity class. Standards are not necessarily limits or desired conditions. Ideally, they represent acceptable conditions for an opportunity class. If monitoring shows that a standard is being approached or exceeded for a key indicator, management action may be necessary to prevent violations of that standard.

According to McCool et al[12], good indicators and standards have the following characteristics:

- Quantitative – specific measurable outputs.
- Reliable – difference are due to real changes and not measurement error.
- Sensitive to change – to measure effectiveness of management actions.

[11] Trails: 37% winter, 63% non-winter; Facilities: 7% winter, 93% non-winter

[12] McCool, Clark and Stankey, 2007. *An Assessment of Frameworks Useful for Public Land Recreation Planning.*

- Administratively feasible – not costly to implement, do not require highly skilled individuals to measure.
- Related to important objectives and issues – provide feedback on how well management actions to maintain or improve desired conditions are achieved.

The Winter ROS table (Appendix J), contains physical, social, and managerial indicators and standards for each opportunity setting. However, it is not feasible to monitor every indicator. One or two key indicators are identified to represent acceptable conditions for each opportunity setting.

Social

Social indicators are based on the values and preferences visitors have for winter recreation experiences. While a visitor's experience is unique to that individual, similarities can be found among visitor preference groups. These preference groups correspond to recreation opportunity settings (primitive to rural) as described in the Desired Future Condition section.

Visitor satisfaction is a common way to monitor how well visitors are achieving their desired experiences. The Deschutes already measures visitor satisfaction through the National Visitor Use Monitoring (NVUM) process. Using FY 2008 survey data as a baseline, the Deschutes can continue to monitor general visitor satisfaction with winter recreation through NVUM.

Indicator – Percent of visitors satisfied with winter recreation opportunities.

Standard – Percent of visitors satisfied with winter recreation opportunities is the same as or better than FY 2008.

Key Opportunity Settings

To further describe the range of recreation opportunities available, five opportunity settings were developed. The opportunity settings correspond with variations in visitors' desired recreation experiences. For each opportunity setting, the following key indicators are used to represent the acceptability of conditions in that setting. These key indicators will be monitored by forest staff as outlined in a monitoring plan.

I. Alpine Solitude (ROS: primitive and semi-primitive non-motorized)
Visitors prefer opportunities for challenge and self-reliance in a wilderness setting. Untracked snow and no facilities or services are highly desirable. A small amount of non-motorized forest visitors prefer this type of opportunity.

Indicator – Percent of visitors who were dissatisfied with their experience in Alpine Solitude areas due to crowding or behavior of other visitors.
Standard – No more than 10% of visitors are dissatisfied with their experience in Alpine Solitude areas due to crowding or behavior of other visitors.

Indicator – Availability of untracked snow.
Standard – Untracked snow is available to 90% of users on non-peak days (up to a week after the last significant snowfall).

II. Backcountry (ROS: semi-primitive non-motorized and semi-primitive motorized)
Visitors prefer opportunities for challenge and self-reliance in a backcountry setting. Untracked snow and marked but not groomed trails are highly desirable. A small amount of non-motorized and motorized forest visitors prefer this type of opportunity.

Indicator – Percent of visitors who were dissatisfied with their experience in Backcountry areas due to crowding or behavior of other visitors.
Standard – No more than 10% of visitors are dissatisfied with their experience in Backcountry areas due to crowding or behavior of other visitors.

Indicator – Availability of untracked snow.
Standard – Untracked snow is available to 80% of users on non-peak days (up to a week after the last significant snowfall).

III. Alpine Challenge (ROS: semi-primitive non-motorized and semi-primitive motorized)
Visitors prefer opportunities for challenge and low to moderate social interaction in an alpine setting. Good access via marked trails and a variety of terrain features are highly desirable for motorized and non-motorized users. Some non-motorized visitors also want areas where motorized use is not present. A small amount of motorized and moderate amount of non-motorized (mainly backcountry skiers) prefer this type of opportunity.

Indicator – Availability of untracked snow.
Standard – Untracked snow is available to 70% of users on non-peak days (up to a week after the last significant snowfall).

Indicator – Percent of visitors who feel physically challenged during their visit to Alpine Challenge areas.
Standard – At least 80% of visitors report feeling physically challenges during their visit to Alpine Challenge areas.

IV. Motorized Social (ROS: roaded natural and roaded modified)
Visitors prefer safe and family-friendly opportunities on motorized trails. Well-marked and maintained trails and adequate parking and staging facilities are highly desirable. Non-motorized visitors expect to see and hear over-snow vehicles. Most motorized and a small to moderate amount of non-motorized forest visitors prefer this type of opportunity.

Indicator – Availability of parking.
Standard – Designed parking capacity accommodates visitor demand on 100% of non-peak and 95% of peak days[13].

V. Non-motorized Social (ROS: roaded natural and roaded modified)
Visitors prefer safe and family-friendly opportunities on non-motorized trails. Well-marked and maintained trails and adequate parking and staging facilities are highly desirable. Areas for exercise and dog-bonding are also important to some users. Most snowshoers and cross-country skiers prefer this type of opportunity.

Indicator – Availability of parking
Standard – Designed parking capacity accommodates visitor demand on 95% of non-peak and 85% of peak days.

[13] Peak days include holidays (Christmas, Martin Luther King Day, President's Day) and associated weekends.

Environmental

Environmental indicators are specific to issues identified above. The following indicators do not replace monitoring required by federal law or monitoring associated with the Deschutes Land and Resource Management Plan. These indicators will be used to assess winter recreation impacts on natural resources at the program level.

1. **Habitat fragmentation**
   Indicator – Net increase in habitat fragmentation at the subwatershed level.
   Standard – No net increase in habitat fragmentation at the subwatershed level.

2. **Wildlife**
   Indicator – Adverse impacts to TES and indicator species.
   Standard – No adverse impacts to TES and indicator species.

3. **Wilderness**
   Indicator – Amount of motorized use within designated Wilderness.
   Standard – Illegal motorized use is reduced by 50% by 2014.

4. **Bend Watershed**
   Indicator - Amount of motorized use within watershed boundary.
   Standard - Illegal motorized use is reduced by 50% by 2014.

5. **Air quality**
   Indicator - Number of days exhaust haze is present at sno-parks.
   Standard – Less than 10% of days between December 1 and March 31 where exhaust haze is present[14].

Managerial

These indicators support a financially viable and managerially feasible winter recreation program.

1. **Funding Mix**
   Indicator – Forest management feels that funding mix (appropriated, partnerships, volunteers, etc.) supports a sustainable winter recreation program.
   Standard – Annual staff survey results show at least 75% of managers indicate that funding mix supports a sustainable winter recreation program.

2. **Management Capacity**
   Indicator – Forest management feels that winter recreation program services are sustained or improving.
   Standard – Annual staff survey results show at least 75% of forest staff indicate program services are sustained or improving.

[14] Actual monitoring locations will be developed in the Winter Recreation Monitoring Plan.

3. **Enforceability**

Indicator – Relative effort involved in implementing and enforcing boundaries.
Standard – Annual staff survey results show at least 90% of forest staff indicate that relative effort involved in implementing and enforcing boundaries is decreasing.

Indicator – Understanding of winter recreation signs and boundaries.
Standard – 90% of winter recreationists understand on-the-ground signs and boundaries.

Desired Future Condition

The desired future condition ROS is a planning framework used to match desired recreation experiences with available opportunities. Informed by public values, the demand analysis, and resource and managerial needs, ROS gives managers the tools to make informed decisions about what types of future opportunities to provide and where. A comparison of *what is* (the existing condition) with *what ought to be* (the desired future condition) allows managers to make choices about when, where and how to provide quality recreation opportunities that meet visitor expectations.

Managers cannot dictate what type of experience visitors will have. They can provide opportunities for certain activity-setting combinations that lead to satisfying experiences for visitors. If individuals receive a satisfactory recreational experience, benefits will result[15]. The ROS allows managers to provide a range of recreation opportunities in which variances in the activities and setting (physical, managerial, social) meet the needs of different recreationists. In essence, by allowing visitors to make decisions about the settings they seek, there will be a closer match between the expectations and preferences visitors hold and the experiences they realize[16].

The desired future condition for winter recreation on the Deschutes is described by ROS class on the map (Appendix I) and the corresponding Winter ROS table (Appendix J). The Winter ROS describes the physical, social and managerial setting components for each ROS class. Key indicators and standards from above for each opportunity setting are shown in italics. These indicators will be monitored to determine whether the forest is providing recreation opportunities that visitors prefer.

Using the Desired Future Condition Winter ROS

The Winter ROS is designed to assist managers when they make site-specific decisions. It is not a substitute for environmental analysis. As a planning framework, the ROS helps managers plan for the right recreation in the right places. Using the Winter ROS as guidance, managers work with visitors and communities to identify recreation needs and determine appropriate proposals to take forward for site-specific analysis.

The Winter ROS is also a tool for public information and engagement. As an information tool, the Winter ROS is used to manage visitor expectations and help visitors match their desired experience with the appropriate setting. The Winter ROS is built on public values and demand for recreation opportunities. As the Deschutes works with communities and partners to deliver these recreation opportunities, the Winter ROS can be expanded beyond the forest's boundaries. This type of collaboration helps ensure that a full range of recreation opportunities are provided across jurisdictional boundaries.

[15] McCool, Clark and Stankey, 2007. *An Assessment of Frameworks Useful for Public Land Recreation Planning.*
[16] Stankey, 1999. *The Recreation Opportunity Spectrum and Limits of Acceptable Change planning systems: A review of experiences and lessons in ecosystem management.*

The Winter ROS can also be used for marketing recreation opportunities to help ensure visitors choose the right setting for the experience they want. In this sense, marketing refers to information found on web sites, brochures, maps, and other printed materials. It also refers to one-on-one contact and outreach efforts that occur between the Deschutes and its visitors. The Winter ROS can be developed into an information tool used by public and private entities across central Oregon.

Monitoring and adaptive management are key to successfully using the Winter ROS to plan for winter recreation opportunities. If monitoring shows that a standard is being approached or exceeded, adaptive management will be required to continue managing for sustainability and providing quality recreation opportunities. As conditions change and new information becomes available, the forest may also need to adjust indicators and standards.

The Winter ROS helps managers make choices such as:

- Where and what type of facilities and amenities are appropriate
- What activities are appropriate
- What visitors can expect in a setting and/or opportunity zone
- Where and what types of outfitter-guide activities are appropriate
- Where and what types of visitor services are appropriate

The Winter ROS is not a substitute for site-specific planning and analysis. It does not:

- Prescribe site-specific management actions
- Replace NEPA or public involvement
- Limit use

Ultimately, the Winter ROS is a planning framework to help managers provide recreation opportunities that meet visitor needs and protect natural resources. The emphasis of the Winter ROS is on providing a range of recreation opportunities across the forest. However, providing a range of opportunities does not equal providing every opportunity in every setting across the forest. In some cases, users will need to choose a different opportunity setting than in the past in order to achieve their desired recreation experience.

Winter ROS Settings

Approximately 78% (1,457,995 acres) of the Deschutes National Forest is available for winter recreation opportunities (Table 3). Portions of the forest are not considered suitable for winter recreation due to lack of consistent snow cover and are not included in the Winter ROS. The Winter ROS also depicts a "snow line" at an elevation of 5000 feet. Above the snow line, the forest can reasonably expect adequate snow cover on an annual basis and manage winter recreation opportunities accordingly. Below the snow line, adequate snow cover may not be available on an annual basis.

Approximately 8% of the forest is in the primitive ROS class. Traditional backcountry skiers and "hybrid" skiers/snowboarders[17] access areas in and near Wilderness boundaries from sno-parks along the Cascade Lakes Highway, McKenzie Highway and Santiam Pass. These users are seeking opportunities to challenge themselves in areas with steeper terrain and untracked snow away from crowds and other users. Much of the interior of designated Wilderness (more than 5 miles from a sno-park), particularly on the north and south ends of the forest, receives little to no use in the winter. This setting primarily supports Alpine Solitude opportunities.

[17] Hybrid users only use snowmobiles outside designated Wilderness as a form of access.

Table 3. ROS Class - Percent of Forest.

ROS Class	% of Total Forest	% of Winter ROS
Primitive	8	10
Semi-primitive Non-motorized	7.5	10
Semi-primitive Motorized	23	29
Roaded Natural	29	37
Non-Motorized Social	.6	.8
Motorized Social	8	11
Rural	1.7	2

Approximately 7.5% of the forest is in the Semi-primitive Non-motorized ROS class. The majority of use is from skiers and hybrids seeking an opportunity to get away from the crowds and challenge themselves in an undisturbed setting. Some marked trails offer access into the backcountry, but no trails are maintained and users must rely on their outdoor skills when traveling in the winter. This setting primarily supports Alpine Solitude and non-motorized Backcountry and Alpine Challenge opportunities.

Approximately 23% of the forest is in the Semi-primitive Motorized ROS class. These areas have marked and maintained motorized and non-motorized trails. Visitors here include snowmobilers, traditional cross-country skiers, snowshoers and other users who are seeking opportunities to experience nature and find areas of untracked snow while having the reassurance of trail systems in some areas. Designated non-motorized areas require travel on ungroomed trails. This setting primarily supports Backcountry and Alpine Challenge opportunities.

Approximately 29% of the forest is in the Roaded Natural ROS class. Plowed winter roads provide access to the forest and moderate-sized sno-parks allow visitors to stage before entering the forest. A variety of winter visitors are seeking opportunities to be with family and friends for social bonding and skill development. Well marked and maintained motorized and non-motorized trails allow visitor to frequently interact with each other. Open areas near groomed trails provide opportunities for motorized snowplay. Designated non-motorized areas are easily accessed from sno-parks. This setting primarily supports Motorized Social and Non-motorized Social opportunities.

Approximately .6% of the forest is in the Non-Motorized Social ROS class. This ROS class emphasizes social interaction in a non-motorized setting. Visitor use and interaction is higher than in roaded natural areas. Some trails are designed to allow beginners an opportunity to learn skills before venturing into more difficult terrain. Designated non-motorized areas are easily accessible from sno-parks.

Approximately 8% of the forest is in the Motorized Social ROS class. Social interaction is frequent and visitors expect to see others on designated motorized trail systems. Some trails are designed to allow beginners an opportunity to learn skills before venturing into more difficult terrain. This setting includes resorts such as Elk Lake, Paulina, and Crescent Lake.

Approximately 1.7% of the forest is in the Rural ROS class. Major highways and other roads provide winter access to passenger vehicles. This setting supports developments that facilitate access to other settings. Sno-parks are large and can generally accommodate use on peak days. Visitors have an opportunity to gather and stage before participating in their preferred experience.

Issue Analysis

Parking Capacity

One of the major drivers for the Winter Recreation Sustainability Analysis is the demand for additional parking capacity, particularly along Cascade Lakes Highway. Several issues surround proposals to increase parking capacity:

- Social - Quality recreation opportunities may be diminished with increased parking capacity; some visitors will not be able to find solitude.
- Environmental - Larger parking capacity and increased visitor use may adversely affect natural resources, particularly wildlife habitat and air quality at sno-parks.
- Managerial - More violations of Wilderness, watershed and non-motorized boundaries may occur.

The majority of all winter recreation use is concentrated along the Cascade Lakes Highway corridor. Due to its proximity to Bend, visitors can easily access the high country in a short amount of time. As the demand analysis and visitor surveys indicate, visitors participate in non-motorized activities on the Deschutes more often than motorized activities. However, differences in visitation patterns between motorized and non-motorized users suggest differences in parking needs:

- Non-motorized users typically participate in shorter duration trips, which translate to a higher turnover rate at sno-parks. Exceptions include backcountry skiers who spend 4 or more hours away from the sno-park.
- Motorized users typically participate in longer duration trips. They use parking spaces for a longer period of time.
- Motorized users also participate in their activity more frequently, i.e. the same visitors participate on a more regular basis than non-motorized users.

The Deschutes has 14 sno-parks across the forest, with 6 located along or near Cascade Lakes Highway[18]. Table 4 shows existing sno-parks. Forestwide, 62.8% of sno-park capacity is open to mixed use and 38.2% is non-motorized[19]. On Cascade Lakes Highway, 38.5% is open to mixed use and 61.5% is non-motorized. In effect, 100% of sno-park capacity is available to non-motorized users while motorized users are limited to certain sno-parks.

[18] Cascade Lakes corridor sno-parks include: Wanoga, Wanoga Snowplay, Meissner, Sawmpy, Duthman and Edison.
[19] Non-motorized sno-parks are legally open to over-snow vehicles. However, motorized use is not allowed on trails accessed from these sno-parks so they are effectively non-motorized only.

Table 4. Existing sno-park capacity.

Name	Type of use	parking spaces	PAOTs[20]	acres	sq ft
Meissner[21]	non-motorized	120	360	1.5	65340
Dutchman Flat	mixed	26	78	0.7	311720
Crescent Lake	mixed	30	105	2.0	87120
Lower Three Creek	mixed	60	180	1.5	674000
Edison	mixed	114	342	2.6	113256
Swampy Lakes	non-motorized	130	390	1.7	750000
Upper Three Creek	mixed	60	180	2.4	105325
Skyliner	mixed	16	48	0.3	12243
Junction	mixed	60	180	5.0	213445
6 Mile	mixed	30	90	0.6	26136
10 Mile	mixed	70	210	3.2	140000
Wanoga	mixed	76	265	3.0	130680
Wanoga Snowplay	non-motorized	95	285	1.5	66020
Vista Butte	mixed	15	45	.2	8712
Total		**902**	**2,758**	**26.2**	**2,703,997**

Some users disagree that 100% of sno-park capacity is available to non-motorized use because sharing parking areas with motorized vehicles does not meet their experience expectations. Based on existing sno-park capacity, however, the Deschutes is providing a full range of sno-park conditions to meet most users' expectations. Almost 40% of sno-park capacity forestwide is managed solely for non-motorized use. With a higher turnover rate, non-motorized users have a greater chance of finding available parking, particularly in the non-motorized only sno-parks along Cascade Lakes Highway.

The Deschutes has collected use data at sno-parks since the mid-1990s. Information about the number of vehicles, license plate origin and for mixed use sno-parks, whether vehicles were associated with non-motorized (skier, snowshoe or snowplay) or motorized use was collected during winter patrols. The data was not collected in a systematic, random fashion so it is difficult to compare on a year-to-year basis. However, comparisons of non-motorized and motorized use of sno-parks shows varying use patterns.

[20] Assumes 3.0 people per vehicle
[21] Capacity is based on 2008 expansion decision

Many conditions may have affected this use pattern including weather, winter patrol days or time of day that winter use data were collected.

Social

Current sno-park capacity does not always accommodate existing use and likely will not accommodate future demand. Deschutes' visitors cite lack parking availability as one of the major barriers to obtaining desired recreation experiences. Approximately 87% of survey respondents indicated that parking was very or extremely important and another 43% said improved parking was the item they would like to change on the Deschutes. Interview and values workshop respondents expressed similar concerns about the availability of parking along Cascade Lakes Highway.

The Deschutes National Forest is located in a hot spot for recreation activities and Deschutes and Crook counties were identified several times as high priority counties in the 2008-2012 Oregon Statewide Comprehensive Outdoor Recreation Plan (2008 SCORP)[22]. Much of the increase in visitation will be from non-motorized users and particularly Baby Boomers who are seeking accessible and convenient activities. With the focused attention of the 2008 SCORP on the Pre-Boomer and Boomer generations, respondents were asked to rank activities they believe they will participate more in over the next 10 years. Within the top 10 activities for Boomers and Pre-Boomers in terms of percent increase in number of days in the next 10 years, winter activities made the number 1, 2, and 8 places:

1. Snowshoeing- 404%
2. Cross Country Skiing- 247%
8. Snowmobiling- 145%

Many winter recreation visitors feel that increased parking capacity will not adversely affect their ability to find their desired recreation experiences. While some crowding and congestion occurs at sno-parks, visitors said that the number and variety of trails lets people spread out. According to one interview respondent, providing opportunities for more people to get out and experience the natural world is worth seeing a few more people on the trails. Nearly half (49%) of survey respondents said that crowding was about what they expected, while 26% said they saw a little or a lot or less than expected and 23% said they saw a little or a lot more than expected. Moreover, the majority of respondents stated that they did not feel crowded by any group at trailheads or beyond. Both values workshop participants and interview respondents indicated that the existing trail system can accommodate increased use and still allow visitors to achieve their desired experiences.

Sno-parks are located primarily in the Rural ROS setting and adjacent to Motorized Social, Non-motorized Social, and Roaded Natural settings (see Appendix I). These settings are managed for social interaction, family bonding and connection with nature. The key social indicator for these settings is availability of parking spaces. Visitors will expect to encounter other people on trails and sno-parks are moderate to large. As visitors travel farther from sno-parks, and move into the semi-primitive motorized, semi-primitive non-motorized and primitive settings, social interaction becomes less acceptable and solitude more important. For these settings, then, availability of parking determines the quality of the recreation experience, rather than encounters on trails, group size, noise or other social indicators.

Non-motorized recreationists typically travel within a 2-5 mile radius of a sno-park while motorized recreationists can easily travel within a 10-40 mile radius. The travel radius includes use of loop trails, out and back trails, destinations and non-trail areas. Actual distances traveled range from less than 10 miles for backcountry skiers, less than 5 miles for cross-country skiers and snowshoers[23] to over 50 miles for snowmobilers. Table 5 shows the miles of trails available from each sno-park based on the average

[22] Outdoor Recreation in Oregon: The Changing Face of the Future: The 2008-2012 Oregon Statewide Comprehensive Outdoor Recreation Plan.
[23] Winter Recreation on Western National Forest Lands, Winter Wildlands Alliance, 2006.

distance a visitor may travel. Travel patterns and how visitors disperse from each sno-park has a greater impact on the quality of the recreation experience than how many people are in an area at one time. Non-motorized visitors have access to 10-70+ miles of trail from each sno-park while motorized users have access to nearly 400+ miles of trail from each sno-park.

Table 5. Miles of trail available by sno-park.

Sno-park	Non-motorized Footprint[24] (5 mile radius)	Motorized Footprint (40 mile radius)
Crescent Junction Snopark	13.12	405.71
Crescent Lake Snopark	11.65	387.23
Dutchman Snopark	34.52	455.82
Edison Snopark	43.33	481.66
Kapka Butte Snopark - Proposed	77.31	456.04
Lower Three Creeks Snopark	10.40	393.66
Meissner Snopark	59.38	N/A
Six Mile Snopark	4.28	470.23
Swampy Snopark	72.81	N/A
Ten Mile Snopark	9.85	452.20
Upper Three Creeks Snopark	11.68	400.16
Vista Butte Snopark	82.90	455.18
Wanoga Snomobile Snopark	65.25	451.77
Wanoga Snowplay Snopark	63.02	N/A

Some non-motorized visitors feel that increasing parking capacity will only exacerbate existing issues such as conflict in mixed use areas and illegal use of Wilderness and watershed areas. Past attempts to reduce conflict around Tumalo Mountain, for example, have had marginal success. Adding parking capacity to already contentious areas will only diminish some non-motorized visitors' experiences and possibly displace them from the Cascade Lakes corridor. By managing for a range of recreation opportunities as outlined in the Desired Future Condition section of this document, the Deschutes is providing most visitors opportunities to achieve their desired recreation experiences. The vast majority of the Deschutes National Forest has little to no conflict issues and some visitors displaced from the Cascade Lakes corridor may find acceptable recreation opportunities in these other areas. However, increasing use across the forest will eventually affect existing low-conflict areas.

Environmental

Increased parking capacity and visitor use has the potential to impact natural resources on the Deschutes. Adding parking capacity would require ground disturbance with effects such as habitat fragmentation, loss of individual trees, and edge effects. As noted in Table 4, existing sno-park capacity

[24] Only includes designated non-motorized trails (cross-country ski and snowshoe).

disturbs 26.2 acres, or .0000014% of the forest. Adding or expanding parking capacity has a low potential to impact natural resources on a landscape scale.

One concern with increased visitation is a subsequent increase in trail expansion. Adding parking capacity by building or expanding existing sno-parks does not mean a net increase in trail expansion. Both visitors and managers feel the current trail system can handle a moderate increase in visitation. However, modifications to the existing trail system may be necessary to provide recreation opportunities that meet desired future condition objectives. To reduce impacts to resources, the forest should consider opportunities to close existing trail segments in exchange for new segments that better meet setting objectives.

Potential trail impacts to roadless areas on the forest are also a concern. New trail corridors in roadless areas could cause disturbance and edge effects. While motorized use is not prohibited in inventoried roadless areas, motorized trail expansion in roadless may affect roadless values and encourage illegal summer use on winter trails. However, design criteria such as felling trees into the trail corridor to discourage summer use may mitigate these impacts.

Another concern is decreased air quality from sno-park expansion. Idling snowmobiles emit exhaust which can settle in pockets around the sno-parks. Newer snowmobile technology (i.e., 4-stroke engines) emits less exhaust, but this technology is not standard on new machines and most visitors own 2-stroke machines. In a 2007 decision, Yellowstone National Park required all machines entering the park meet Best Available Technology (BAT) for air and sound emissions[25]. This requirement is combined with an intensively managed winter program that limits visitor freedom (all use is guided, use restrictions, etc.). Similar national forest winter use plans have not required BAT for snowmobiles, but have implemented monitoring programs for air quality.

Finally, sno-park expansion may increase impacts to Wilderness and watershed areas. Currently, illegal snowmobile use in closure areas is common and well-documented. Although it is likely a small percent of motorized users who illegally use these areas, their tracks may encourage other users to follow suit. These impacts are social and environmental. Illegal motorized use negatively affects visitors who seek solitude and quiet. It also compromises Wilderness values and increases disturbance to wildlife that use these areas as a haven. In the Bend watershed, exhaust and fuel leakage from snowmobiles may adversely affect water quality.

Managerial

Increasing parking capacity has several implications for management of the winter recreation program. Many of these implications are connected to social and environmental concerns: managing conflict, managing illegal use and increasing stewardship of natural resources. In addition, funding and management capacity of the forest to handle additional visitor use is a major concern for managers and visitors alike.

As mentioned above, user conflict stems from a difference in values for recreation experiences. Although winter survey results indicate that 80% of visitors are very satisfied with their recreation experiences on the Deschutes, another 20% are only moderately or not satisfied. By managing for a range of recreation opportunities based on what visitors value (i.e., ROS), managers are providing visitors with choices on when, where and how to recreate. Some visitors will have to choose an alternate setting to achieve their desired recreation experiences.

Illegal use of restricted areas is a common management dilemma on national forests. Several managers on the Deschutes estimated a 90-95% compliance rate with current restrictions. Increasing this

[25] Yellowstone National Park Winter Use Plans Record of Decision, 2007.

compliance rate would likely take intensive field presence and patrols in conjunction with education efforts to reach the additional 5-10% of users who do not respect closures.

Increasing the intensity of management would also require a shift in funding of the winter recreation program. The program currently lacks the funding and staff to be to provide a sustainable winter recreation program. Managers and visitors alike are concerned that adding parking capacity will only overburden the already stressed management capacity of the forest. Recreation use occurs year-round on the Deschutes, yet most funding and resources goes toward the summer program. Forest staff recognizes the need to elevate the priority of the winter recreation program and align the forest's recreation budget and staffing to match that priority.

Partners such as outfitter-guides and resorts play a key role in addressing management capacity issues. These permittees are often the eyes and ears for the forest. Permittees can help maintain the facilities and trails they use as well as report social and environmental issues to the forest. These permittees have a vested interest in providing the best possible experience to their customers and can likely assist the forest in many ways.

Visitor use will inevitably increase on the Deschutes in the winter. Managers have to balance between accommodating additional use with increased parking capacity or maintaining use at current levels with increased restrictions on visitor use and thus more intensive management. Use restrictions could also conflict with the forest's and visitors' values of connecting people with the land. These connections are what create long-term stewardship and an environmental ethic among forest visitors.

Solitude and Quiet Recreation

The fact that central Oregon is experiencing a population boom is undeniable. Despite economic downturns and a slowing economy, the population in central Oregon is expected to continue to grow. Natural amenities such as scenery, climate and recreation opportunities that enhance residents' quality of life are the major driver for this immigration.

Most recreationists agree that connecting with nature, getting away from the regular routine, and challenging themselves are important aspects of winter recreation opportunities on the Deschutes. Many non-motorized recreationists also prefer to recreate in areas where motorized vehicles cannot be seen, heard or smelled. As mentioned above, most current visitors do not feel crowded at trailheads or on trails and are able to get the experience they seek.

As the population in central Oregon grows, providing and maintaining opportunities for solitude and quiet recreation will likely be more difficult. Additionally, advances in technology for both motorized and non-motorized equipment will help more people access the forest. Designating areas where higher use and motorized equipment is appropriate will help protect those areas designated for solitude and quiet recreation.

Providing opportunities for solitude may require more intensive management. Primitive, Semi-primitive Non-motorized, and Semi-primitive Motorized settings that provide opportunities for Alpine Solitude and Backcountry experiences are identified in the Winter ROS. Maintaining these settings will require routine user education and enforcement. Moreover, visitors who are seeking experiences that do not depend on these settings (e.g. Alpine challenge, Non-motorized Social) should be encouraged to use settings that are more appropriate.

Dogs and Winter Recreation

People who recreate with dogs fall into two categories: working/training with animals and exercising/spending time with companion animals. Recreationists who train with their animals such as dog sledders and ski jourers obtain a permit to travel on snowmobile trails with their animals. There are few conflicts with these types of recreation activities.

Recreationists who enjoy exercising with their companion dogs are typically non-motorized visitors who want opportunities to ski or snowshoe with their dogs in areas where motorized use does not occur. Currently, dogs are not allowed on trails in designated non-motorized areas on the north side of the Cascade Lakes corridor. These areas accessed from Meissner, Swampy, and Dutchman Sno-parks have an extensive system of groomed cross-country ski trails. Dogs are allowed on cross-country ski trails south of the Cascade Lakes Highway and on non-motorized trails in other areas of the forest.

Some non-motorized visitors do not like dogs on ski trails because dog prints can cause damage to ski tracks and some owners do not control or pick up after their dogs. Conflict between visitors who do and do not like recreating with dogs led the Deschutes to close the north side of the Cascade Lakes Highway to dogs in the 1980s for the following reason:

- To prevent collisions between dogs and people on trails.
- To reduce sanitation problems on the trails and at shelters.
- To reduce conflicts between users over dog behavior.

Overall, recreationists can have their companion dogs on 53% of the forest's designated cross-country ski trails. Recreationists can also take their dogs to dispersed areas across the forest. Indeed, the vast majority of the Deschutes has no restrictions on dogs in the winter. However, the 53% of cross-country ski trails open to dogs is not preferred by recreationists for several reasons:

- The non-motorized trails are within or adjacent to mixed use/motorized trail areas.
- The cross-country ski trails open to dogs are not groomed.
- Some non-motorized areas open to dogs have poor snow quality (e.g. Edison, Skyliner).

There is a need to provide opportunities for visitors who like to recreate with their companion dogs in areas with quality snow conditions and groomed trails. There is also a need to maintain areas where dogs are not allowed. Visitor use and demand in the Cascade Lakes corridor is already high, so providing dog-friendly groomed trails should avoid areas that would likely lead to conflict. See Strategies section below for recommendations on appropriate areas for dog-friendly ski trails.

Impacts to Other Resources

One of the major concerns about increasing winter recreation use is the potential adverse effects it will have to natural resources. Habitat fragmentation from additional roads and trails, decreased air quality from additional snowmobile exhaust, and decreased water quality from recreation use in municipal watersheds are key issues. Yet, failing to accommodate increasing use has its own issues such as overflow parking that damages natural resources and user created trails that are not located in appropriate areas. Finding a balance between accommodating increasing use and protecting natural resources is often difficult.

Perceptions of crowding and conflict vary widely among user groups and between users groups and managers. For example, the 2008 winter recreation survey found that over 80% of visitors to the Cascade Lakes corridor were very satisfied with their recreation experience and less than 3% said they were not satisfied. Another 82% did not feel crowded at trailheads or beyond. Deschutes recreation managers, however, have expressed that the amount of use along the Cascade Lakes corridor is creating unsatisfactory experiences among many visitors.

When crowding or conflicts become issues in an area that receives heavy use, managers often try to disperse use to areas that receive little use. While this seems like an intuitive way to reduce crowding and conflict, it generally does not achieve those goals. In reality, perceptions of crowding and high use affect a small percent of visitors. Interviews and meetings with TUG members and recreation stakeholders indicate that additional use will not adversely impact the ability for people to be satisfied with their recreation experiences. Encouraging use in places that currently receive little use carries a huge risk of creating additional social impacts in low use areas. Visitors in low-use areas are more interested in experiencing solitude and are more sensitive to crowding at relatively low-use levels, compared to visitors in high-use areas[26].

Increasing use still impacts natural resources whether it occurs in areas that already receive high use or whether new areas are developed to accommodate more use. However, the relationship between use and impacts is curvilinear meaning that most impacts occur with relatively low use. Resource impacts from increasing use in high use areas will be minor while resource impacts in low use areas will be significant. Thus, dispersing use from high use to low use areas may actually increase resource impacts on a landscape scale.

Focusing improvements in areas that already receive moderate to high use will help protect areas that receive low use from additional impacts. High use winter recreation areas on the Deschutes like the Cascade Lakes corridor and NNVM account for a small percent of the total resource base. The Winter ROS outlines where facilities such as sno-parks and trails are appropriate. For example, large sno-parks would only be built or expanded in the Rural ROS setting. This desired condition allows social and resource impacts to be minimized in settings that are sensitive to high use and concentrated in settings where additional use will create few new impacts.

[26] Blahna, D. Introduction: Recreation Management. In: Proceedings: National Workshop on Recreation Research and Management. PNW-GTR-698, 2007.

Strategies and Recommendations

The following strategies and recommendations are designed to help move the Deschutes' winter recreation program toward the desired future condition as described in the Winter Recreation Opportunity Spectrum table (Appendix H) and map (Appendix I) .

Social

1. **Understand visitor use patterns, demand, and visitor satisfaction.**
   The demand analysis included in this Winter Recreation Sustainability Analysis is a snapshot in time of predicted use and demand. It is based on the best available information. Recreation use patterns are dynamic and require frequent validation to understand how past trends affect current use and how current use may change in the future. National programs such as National Visitor Use Monitoring (NVUM) and National Survey on Recreation and the Environment (NSRE) help managers understand larger scale trends. Local trends can be assessed through rapid social assessments and site-specific monitoring.

   Understanding recreation demand in the broader outdoor recreation context of the region is equally important. In a given area, the Forest Service is one of many providers of outdoor recreation opportunities. The forest and other recreation providers should comprehensively assess the range of outdoor recreation opportunities and the role of each provider in meeting visitor demand.

   Many times, recreation managers are overwhelmed with a few vocal unsatisfied visitors and do not hear from the satisfied majority. As the 2008 winter survey indicated, the majority of visitors are satisfied with existing recreation opportunities. However, conditions can change rapidly. Long-term monitoring of visitor satisfaction will help managers assess how well they are providing the recreation opportunities visitors' desire.

   Recreation setting management objectives as outlined in The Winter ROS will allow managers to ask visitors how satisfied they are with specific recreation opportunities in specific settings. Key indicators are designed to assess overall satisfaction of a setting. Visitor satisfaction assessment does not require extensive surveys; rather, managers should devise a monitoring plan that takes advantage of existing resources to be efficient and effective.

   Recommendations
   - Assess recreation trends and demand on a regular basis.
   - Monitor visitor satisfaction as outlined in the Winter ROS.

2. **Provide adequate parking along Cascade Lakes corridor and other areas of the forest.**
   The Deschutes must be prepared to accommodate predicted increases in winter recreation use across the forest. The demand analysis indicates that participation in non-motorized winter activities is growing at a faster rate than participation in motorized activities. However, snowmobile registrations increased 6% in Oregon and 32% in Deschutes County from 2000 to 2006. Approximately 18% of the snowmobiles registered in Oregon are in Deschutes County. While more visitors are expected to participate in non-motorized winter recreation on the Deschutes, participation in motorized winter recreation will continue to increase.

   The 2008 winter recreation survey shows that 25.7% of winter visitors to the Cascade Lakes Highway corridor are snowmobilers, 65.8% are non-motorized (cross-country skiers, snowshoers, snowplay) and 6.3% participate in both motorized and non-motorized activities. 33% of non-

motorized winter survey respondents said that they were bothered by hearing snowmobiles or smelling snowmobile exhaust. Most non-motorized users desire separate parking areas so they do not have to experience the noise, smell and air quality issues associated with motorized use.

Table 6 displays existing non-motorized and mixed use parking capacity forestwide and for the Cascade Lakes Highway (CLH) corridor.

Table 6. Parking Capacity

		PAOTs	Design Capacity	Percent of Total
Forestwide	Existing non-motorized	1035	345	38.2%
	Existing mixed	1671	557	61.8%
Cascade Lakes Highway	Existing non-motorized	1035	345	61.5%
	Existing mixed	648	216	38.5%

Parking capacity is adequate at most sno-parks outside the CLH corridor, but areas such as McKenzie Pass and Newberry Crater and communities such as Sisters, Sunriver, La Pine and Crescent will likely see more demand. Forest staff have identified several areas where expansion of winter recreation opportunities is desirable. These areas are considered "zone of influence" and are located near or adjacent to communities mentioned above. Areas for high growth potential include:

- Ten Mile Sno-park often reaches or exceeds capacity on holiday/peak weekends. It provides access to Newberry Crater and is the only area east of Highway 97 that has consistent snow. Its proximity to La Pine and Bend and outstanding scenery make it a popular destination, particularly for people seeking Motorized Social opportunities.
- Communities south of Bend along Highway 97 are growing rapidly. Several new developments and resorts adjacent to the forest (west of the highway) have a potential to impact winter recreation use. Many of these new visitors will seek easily accessible Non-motorized Social and Motorized Social opportunities.
- McKenzie Pass is one of the few winter recreation access points on Sisters RD. The area is known by local snowmobilers who like to access the Sisters cross-district trail and the McKenzie Highway. The attractiveness of this area is highly dependent on snow depth. Except for Highway 242, most of the area west of the 1028 road and above 4500' in elevation is Wilderness. For this reason, it is not desirable to encourage expanded snowmobile use in this corridor; however, additional Alpine Solitude and Non-motorized Social opportunities may be appropriate.
- The Cascade Lake corridor has the highest use and thus highest demand on the forest. Ease of access from Bend, higher elevations and a variety of opportunities make this corridor a winter recreation destination. A planned expansion of Meissner Sno-park will provide additional access Non-motorized Social opportunities. The proposed Kapka Butte Sno-park will provide additional access to Motorized Social and Alpine Challenge opportunities.

Adding parking capacity on the forest has several implications on visitors' winter recreation experiences. Visitors seeking Motorized Social opportunities will benefit from increased parking

capacity. Additional and/or larger sno-parks would meet their needs for adequate parking and staging facilities while providing access to a large network of motorized trails. Motorized visitors seeking an Alpine Challenge opportunity would also benefit from adequate staging and parking facilities from increased parking capacity. However, the availability of untracked powder for both motorized and non-motorized visitors would likely be affected by an increase in parking capacity. Non-motorized visitors seeking an Alpine Challenge opportunity would likely be most affected by increased parking capacity. Any increase in parking capacity will potentially increase motorized use of non-motorized areas. Mitigation measures such as alternate routes to motorized play areas, education and patrols of non-motorized areas will be necessary.

Recommendations

The following criteria should apply to increased sno-park parking capacity:

- Only expand or build sno-parks located in Rural or Motorized Social/Non-motorized Social ROS settings.
- Increased parking capacity should primarily provide access to Motorized Social and Non-motorized Social opportunities (including snow play areas).
- Consider increased parking capacity for non-motorized visitors first.
- Only increase snowmobile parking capacity in areas that primarily access Motorized Social opportunities.
- Assess actual use and days that exceed capacity prior to increasing parking capacity.

3. Protect opportunities for solitude and self-reliance for both motorized and non-motorized visitors.

In the face of increasing use, opportunities that rely on solitude and self-reliance are often lost more quickly than opportunities that are more social in nature. Although many current winter visitors are satisfied with their recreation experience, building and expanding sno-parks and providing access to an increasing number of visitors has the potential to decrease the availability of Alpine Solitude and Backcountry areas.

In the Winter ROS, 38.5% of the forest is primitive, semi-primitive non-motorized, or semi-primitive motorized. The forest must monitor use in these less developed areas and take the necessary management actions to ensure quality recreation opportunities are available in these settings.

Recommendations

- Only provide facilities in Semi-primitive settings that are critical for user safety or resource protection.
- Do not provide facilities in Primitive settings.
- Monitor acres (% of total forest) for each ROS class.

4. Provide dog-friendly winter recreation areas.

One of the main user groups who feel left out of current recreation opportunities are dog owners who desire to recreate with their companions. These non-motorized users want to be able to cross-country ski or snowshoe on a groomed trail system with their pets. While dog owners are currently able to take their pets on ungroomed non-motorized trails and areas that do not have groomed trails, this is not desirable.

A long term solution is to create an area where traditional skiers, skate skiers and snowshoers can exercise with their dogs on groomed trails. Like other non-motorized areas, it should be easily accessible and have a groomed trail system. Due to the intense winter recreation pressure

along the Cascade Lakes corridor, non-motorized dog-friendly areas may be more appropriate along Road 40/45 corridor, adjacent to the Skyliner Sno-park, or in the NNVM area.

Recommendations

- Seek partnerships with local community to groom cross-country ski trails where people can recreate with their dogs.

Environmental

5. **Provide alternative transportation to non-motorized use areas on the Cascade Lakes Highway.**
   The demand analysis indicates that visitor use will continue to increase on the Deschutes. Much of the predicted increase is from visitors who prefer Non-motorized Social opportunities. These visitors are also more likely to participate in short duration trips whereas other visitors may spend four or more hours on the forest.

   One of the greatest impacts from adding additional parking capacity is the disturbance footprint created by new or expanded sno-parks. This footprint contributes to habitat fragmentation, edge effects and may encourage summer use on winter trails. As winter recreation use increases, alternative transportation to and from sno-parks along the Cascade Lakes Highway will assist the Deschutes in meeting visitor demand while protecting natural resources. Non-motorized Social opportunities located are particularly suited for alternative methods of transportation.

   Recommendations

   - Engage the community and business partners in determining ways to provide alternative transportation to high use areas.

6. **Institute minimum snow depth for over-snow vehicles.**
   The greatest impact on resources from winter motorized use usually occurs when machines are used on less than adequate snow cover. Adequate snow cover is needed to help protect soil and vegetation from damage caused by the track and runners of snow machines. For example, the Mount Baker – Snoqualmie NF uses a minimum snow depth of 24" at the trailhead; the Routt NF uses a minimum snow depth of 12" of uncompacted snow for general use and 18" for outfitter-guide operations and grooming. It is the responsibility of the user to observe this regulation. The forest should inform the public when snow depth requirements are met via trailhead postings, the internet and front desks.

   Instituting minimum snow depth for over snow vehicles will have the following implications:

   - Consistent requirement for operating over-snow vehicles.
   - Helps winter recreationists to rely on actual snow depth instead of opening and closing dates that vary year-to-year.

   Recommendations

   - Determine appropriate minimum snow depth for the Deschutes and institute forestwide.

7. **Build monitoring into daily winter recreation management.**
The Deschutes must make informed choices about the types and degree of impacts to natural resource from winter recreation. Any activity – whether it is use of a snowmobile trail or removing trees for a timber sale – has the potential to affect resources. To manage for environmental sustainability, the forest has a responsibility to weigh the costs and benefits of providing certain recreation opportunities.

Having accurate data about visitor use impacts to natural resources is crucial to making informed choices. Without baseline data and subsequent monitoring, it is impossible to assess recreation's true impacts on the environment. Monitoring programs are often cumbersome and costly, and may take years to provide useful data. As mentioned above, monitoring of the winter recreation program should take advantage of existing resources.

Recommendations

- Develop a monitoring plan that is a part of day-to-day winter recreation management.
- Work with National Oceanic and Atmospheric Administration (NOAA) and other partners to institute an air quality monitoring program.

Managerial

8. **Consider alternatives to state sno-park system.**
The Oregon sno-park system is managed by the state Department of Motor Vehicles. A valid sno-park permit is required for any vehicle parked in a designated winter recreation parking area. The program provides funds for snow removal in sno–parks and enforcement of the permit requirement. Any money remaining may be used for maintenance and development of sno–parks or carried over for use in a following year.

The Forest Service also has the authority to charge for facilities that benefit users under the Recreation Enhancement Act (REA). REA allows the forest to collect user-generated revenue at standard amenity or expanded amenity sites that have the required number of amenities. REA also allow forests to collect fees for special recreation permits in areas that require intensive management investments. Winter recreation areas such as Vail Pass on the White River NF have instituted a special recreation permit. Benefits to forest when collecting user-generated revenue under REA include:

- Revenue collected stays at the forest for operations and maintenance, education, law enforcement, signing and information, and investments.
- Greater flexibility for spending user-generated revenue on forest priorities.
- Leverage revenue for special emphasis projects in cooperation with partners.

National forests do not receive funds from the State to manage day-to-day operations of sno-parks such as enforcement of parking capacity and maintenance of toilets and shelters. The Deschutes and other national forests in Oregon have an opportunity to work with the State to revise the sno-park program to share the burden of sno-park management between the two agencies. Existing models such as the Washington and Oregon recreation pass combine agency passes to give visitors access to state and federal lands with one pass.

Recommendations

- Work with the State of Oregon and other national forests to revise sno-park pass program.
- Assess the feasibility of operating some or all sno-parks under REA.

9. **Consider management alternatives for Dutchman Flat.**
   Much of Dutchman Flat is managed for Non-motorized Social opportunities and is adjacent to the Mt. Bachelor Nordic Center which provides similar opportunities. In addition, Dutchman Flat Sno-park provides access to the non-motorized Alpine Challenge opportunity zone around Tumalo Mountain. While motorized users also need access to Alpine Challenge opportunities, motorized trails through the Non-motorized Social opportunity setting is not desirable.

   Non-motorized Social: *Visitors prefer safe and family-friendly opportunities on non-motorized trails. Well-marked and maintained trails and adequate parking and staging facilities are highly desirable. Areas for exercise and dog-bonding are also important to some users. Most snowshoers and a moderate amount of cross-country skiers prefer this opportunity setting.*

   Alpine Challenge: *Visitors prefer opportunities for challenge and social interaction in an alpine setting. Good access via marked trails and a variety of terrain features are highly desirable for motorized and non-motorized users. A small amount of motorized and moderate amount of non-motorized (mostly skiers) prefer this opportunity setting.*

   Managing the sno-park and surrounding area for Non-motorized Social opportunities will greatly reduce managerial impacts. For example, requirements for posting boundary and trail signs would be reduced and would allow the forest to focus on other high-use areas.

   Recommendations
   - Manage Dutchman Flat for Non-motorized Social opportunities.
   - Provide alternative access and trails to Motorized Social and Alpine Challenge opportunities that avoid the Dutchman Flat area.

10. **Continue to build constituent support for the recreation program.**
    The Deschutes has a dedicated and involved group of users who want to work with the forest and each other to ensure all users have satisfying recreation experiences. The forest has done an excellent job of working with various user groups to address issues and concerns. However, this takes a commitment from the forest to maintain these relationships and strengthen coalition-building.

    Long-term success of any recreation plan depends on the support of the people affected by decisions. Managers need support not only from recreation users, but also from the communities, local governments and businesses that depend on the satisfaction of national forest visitors. Partnership building with each of these entities is at the core of successfully delivering the recreation opportunities that people desire. Ultimately, a constituency of visitors, partners and communities will collaborate with the forest in shared stewardship of recreation and natural resource values.

    Creating constituent support requires developing and supporting employees who have the appropriate skills. Building relationships, managing volunteers and engaging constituents takes a different skill set than marking and maintaining trails, cleaning restrooms, and patrolling boundaries. Each skill set is necessary for a sustainable winter recreation program and each must be fostered to be successful.

    Recommendations
    - Identify various constituencies and develop engagement strategies for each.
    - Train and/or recruit employees skilled in constituent building.
    - Assess winter recreation sustainability with communities.

11. Provide management for winter recreation that is commensurate with use.

The Deschutes has a dedicated recreation staff that spends an extraordinary amount of time and energy ensuring that winter recreation opportunities on the forest are desirable. Many of the employees have spent a number of years on the forest and have a deep internal knowledge database. While some of this internal knowledge is captured "on paper," there is a high likelihood that much of it will be lost as employees retire or move to other jobs.

The current winter recreation boundaries around Dutchman Flat and Tumalo Mountain are an example of intensive management for little return. The management and maintenance of those boundaries require an inordinate amount of time and effort and have not yielded a reduction in conflict or an increase in visitor satisfaction.

Boundaries need to be easy to recognize and manage. Using prominent geographic and development features (i.e. ridges, trails and roads) that are easily recognizable and make sense to users in the field will likely increase compliance and make education and enforcement streamlined. Having clearly defined and identifiable boundaries helps recreationists find and stay within appropriate areas and helps to decrease unintentional trespass. This in turn, may decrease the potential for conflict.

The forest must dedicate adequate resources to ensure a viable and sustainable winter recreation program. These resources fall into two categories: staff and funding.

- Staff – Traditionally, the Forest Service has relied on paid employees to perform day-to-day management tasks such as setting boundary markers, cleaning restrooms and making visitor contacts at sno-parks. While employees are still needed to do some of these tasks, the Deschutes must also invest in employees who are dedicated to coalition building. As use increases and diversifies, it will become more important to look to business, non-profit and volunteer partners to help the forest deliver the winter recreation program. Only by committing internal resources to fostering these relationships will the forest have the momentum to make them truly effective.
- Funding – Traditional funding sources are not enough to provide and maintain outstanding winter recreation opportunities. Currently, forest staff estimate that 75% of appropriated recreation funding goes to the summer program and 25% goes to the winter program. There is a need to analyze the mix of appropriated funds and build a forest allocation model to support recreation priorities forest wide.

Recommendations

- Assess staff needs to provide a sustainable winter recreation program.
- Develop a funding strategy that includes appropriated dollars, partnerships, grants and other sources to provide a sustainable winter recreation program.

Conclusions

The Deschutes National Forest has many of the elements necessary to manage winter recreation sustainably for current and future generations. The majority of current visitors are satisfied with their overall winter recreation experiences. However, the Deschutes, like many national forests, struggles with managing for diverse user groups who have conflicting goals.

The Winter Recreation Sustainability Analysis gives the Deschutes tools to move toward sustainability. The Winter ROS Table and accompanying map allow the forest to make informed decisions about where to invest infrastructure and people to provide quality recreation opportunities. It also helps managers make choices about providing the right recreation opportunities in the right places. The recommendations and strategies from this Winter Recreation Sustainability Analysis will help the Deschutes implement a sustainable winter recreation program. Managing for sustainability, however, requires flexibility. As conditions change and new information becomes available, the forest will need to make adjustments to the physical, managerial and social components of winter recreation settings to continue to provide quality recreation opportunities, protect natural resources and ensure economic viability.

The success of managing the winter recreation program for sustainability lies in the forest's ability to continually adjust the program to meet the needs of visitors and local communities. Central Oregon is a desirable place to live, and has one of the fastest growth rates in the United States, largely because of the natural amenities available on the Deschutes. Both residents and visitors enjoy the year-round recreation opportunities and many make it part of their identity. These recreationists can be the forest's biggest advocates through shared stewardship and lasting support. The forest has a responsibility to commit resources to building and maintaining these long-term relationships. Together, the Deschutes and its partners can be leaders in "caring for the land and serving people."

Appendix A: Analysis Environment

Federal Laws and Guidance

National Environmental Policy Act of 1969 (NEPA)
The NEPA requires that federal agencies prepare detailed statements on proposed actions that significantly affect the quality of the human environment.
NEPA's requirement is designed to serve two major functions:

1. To provide decision makers with a detailed accounting of the likely environmental effects of a proposed action prior to its adoptions; and
2. To inform the public of, and allow comment on, such efforts

Wilderness Act
Much of the area within the Alpine Summit is designated Wilderness. There are five Wilderness areas within the Deschutes National Forest.

Mt. Jefferson	32,734 acres (shared with Willamette and Mt. Hood NF)
Three Sisters	92,706 acres (shared with Willamette NF)
Mt. Washington	13,563 acres (shared with Willamette NF)
Diamond Peak	32,964 acres (shared with Willamette NF)
Mt. Thielsen	6,400 acres (shared with Umpqua and Winema NF)

36 CFR 261 prohibits mechanized and motorized equipment in wilderness areas. This means snowmobiles are not allowed in wilderness areas. Many groomed snowmobile trails on the Deschutes run parallel, or nearby Wilderness boundaries.

- Wildernesses are designed to protect public purposes of "recreational, scenic, scientific, educational, conservation, and historical use," but designation does not identify individual or more specific values (or priorities) for any given wilderness. The overarching concept is to preserve natural conditions and wilderness character.

- The Wilderness Act specifically prohibits some uses and development. With some exceptions, prohibitions include motorized and mechanized vehicles, timber harvest, new grazing and mining activity, or development. These restrictions do not apply to trails and bridges used to access these areas for "wilderness purposes."

- The Wilderness Act specifically identifies "outstanding opportunities for solitude" and "primitive and unconfined type of recreation" as management goals. However, it does not further define these terms.

- Most types of recreational use are allowed in Wilderness, "except those needing mechanical transport or motorized equipment, such as motorboats, cars, trucks, off-road vehicles, bicycles and snowmobiles." Commercial services may be offered for activities "proper for realizing the recreational or other wilderness purposes" (Section 4(d) (5)).

Executive Orders 11644 and 11989
Source: The provisions of Executive Order 11644 of Feb. 8, 1972, appear at 37 FR 2877, 3 CFR, 1971-1975 Comp., p. 666, unless otherwise noted.

The widespread use of off-road vehicles (ORVs) on public lands--often for legitimate purposes but also in frequent conflict with wise land and resource management practices, environmental values, and other types of recreational activity--has demonstrated the need for a unified Federal policy toward the use of such vehicles on the public lands. As it applies to winter recreation, this EO categorizes snowmobiles and other over-snow vehicles (OSVs) as ORVs.

EO 11644 establishes policies and provides for procedures that will ensure that the use of off-road vehicles on public lands will be controlled and directed so as to protect the resources of those lands, to promote the safety of all users of those lands, and to minimize conflicts among the various uses of those lands.

These regulations direct agencies to protect resource values, preserve public health, safety, and welfare, and minimize use conflicts. They also direct managers to locate areas and trails to minimize conflicts between off-road vehicle use and other existing or proposed recreational uses of the same or neighboring public lands, and to ensure the compatibility of such uses with existing conditions in populated areas, taking into account noise and other factors. EO 11644 also ensures public participation in the designation process.

Other legislative guidance
Organic legislation that provides general *guidance for forest management* (e.g., 1960 Multiple Use Sustained Yield Act or MUSY; 1976 National Forest Management Act or NFMA) do not overrule more specific direction in the other legislation. However, these laws provide several complementary management principles, including:

- The "multiple use" concept in MUSY suggests that forests in general cannot be managed for a single purpose, but priorities can be established for sub-areas within a forest.
- The "sustained yield" concept in MUSY requires "achievement and maintenance of a high level regular output of the renewable resources." Applied to recreation, this generally suggests a non-degradation standard regarding high quality recreation opportunities.
- MUSY by itself does not assign "weights" to specific values or uses, and the mix of uses for any particular area is "left to the sound discretion and expertise of the Forest Service" (Sierra Club v. Hardin, 1971). However, MUSY and NEPA direct agencies to document rationales for decisions so they are not "arbitrary or capricious."
- NFMA recognizes the complexity of managing renewable resources. The law requires periodic monitoring, re-assessment, and planning to determine the best mix of "goods and services" to be produced from the nation's forests, which are understood to change over time.

Forest Planning Documents

The Land and Resource Management Plan (LRMP, originally done in 1990), is the main forest management guide for the Deschutes National Forest. This document categorizes 28 different Management Areas (MAs) within the forest. It sets standards and guidelines (S&Gs) for each

management area in alignment with the goals for each area. In 1994, an interagency effort to address concerns over dwindling Spotted-owl and old-growth habitat was created in what is commonly known as the Presidents Forest Plan (PFP). This guiding document categorizes the federal land within the scope of the document into 7 different land allocation units, each with unique standards and guidelines. The S&Gs of existing plans (i.e. LRMP) apply where they are more restrictive or provide greater benefits to late-successional forest-related species than the PFP. Within the PFP, Both the LRMP and PFP guide winter recreational uses on the forest.

General forest guidelines that relate to winter recreation include:

- Trails will be monitored for conflicts among users. When conflicts arise, all avenues of resolution will be explored, while trying to minimize regulation.
- Priorities will be based on responses to increased use, need for resource protection and availability of funds.
- Formal and informal public involvement will be an on-going part of the trail planning process to assure NEPA compliance and that users needs are being met.
- Volunteer groups and individuals will be encouraged to maintain and construct parts of trail systems.
- As a general rule, the Forest will be open to all modes of trail travel except where specifically closed[27].
- The Forest Travel Plan will identify areas, roads, and trails which are open and closed

The LRMP specifically addresses winter trail use and generally states the following S&Gs in regards to winter recreation:

- Nordic trail system needs to be expanded on all Districts, but not at the expense of reducing snowmobiling opportunities. This expansion should also provide for separation of uses.
- The majority of snowmobile trails will be open to ATV's as well.
- The Forest will work with the State Sno-park committee on the designation of additional parking lots.

Where conflicts arise between motorized and non-motorized users groups the following sequence of steps will generally be taken:

1) Trails will be designed to encourage the intended user and discourage others. Inviting trail systems will be provided for both user groups.
2) Intensify educational and indirect management efforts to resolve conflict.
3) Restrict motorized use of Nordic trails.
4) Close the area where conflict is occurring to motorized use.

Other Winter Recreation Planning Efforts

Sawtooth NF - *Wood River Valley Winter Recreation Coalition*

In 1999, a group of winter recreationists was formed to address escalating conflicts between motorized and non-motorized users. Most conflicts arose out of an ever increasing number of recreationists using the area in addition to technological advancements that allowed snowmobiles to get further and higher than ever before. One of their missions given by the Forest Supervisor was to either come up with an agreement on winter use areas within a year or the forest would do it for them. The group utilized a third

[27] This guideline is superseded by the 2005 Travel Management Rule.

party facilitator that was paid by the forest. After many hours and meetings, they finally came up with a recommendation that was adopted by the Forest Supervisor which outlined areas that would be open to motorized and non-motorized use.

Overall, the results have been a success. There have been some violations, but generally the public seems to be satisfied. One key to the success of this collaborative effort was the size of the area they were working on. The managers on the Sawtooth felt that it was easier to deal with the areas with most conflict rather than deal with much larger areas.

Chugach NF - *Kenai Winter Access*
The process in the Kenai Peninsula was brought about by attempting to address winter travel allocations in their 2002 forest plan. It was appealed by the public mainly because of disagreement in the Kenai area. They started the process in 2004 and ended December of 2007. The Forest encountered an intense and acrimonious public when they tried to encourage public participation. In an effort to create a more productive public involvement process, they decided to hire a third party facilitator.

One of the unique strategies the forest adopted as a result of the process was to temporally separate users. Management agrees that it is not a perfect solution, but in general it has been reasonably successful. Critical to the success of the spatial segregation component is setting boundaries that make sense on the ground. Using natural terrain or development features, such as ridges, drainages, roads and trails to define boundaries makes it easier for users to comply and for managers to enforce. Because the limited access or 'portal' areas made segregation more difficult, the forest is in the process of increasing the number of such areas. Another strategy implemented was to provide downloadable GPS maps of the boundaries to users on the forests website.

In hindsight, management would have preferred to complete the process in a timelier manner. The drawn out process was hard on both the public and the agency. A shorter and more intensive process would have been more ideal and likely would have reduced public frustration.

Medicine Bow-Routt NF - ***Winter Recreation Management Forest Plan Amendment***
The Medicine Bow-Rout National Forest had been using a winter recreation community 'task force' to help monitor and come up with 'suggested' use areas. Because there was no legal means of enforcing the suggested uses and the community task force could not resolve certain conflicts within the group, the forest decided to use the NEPA process to resolve user conflicts. They started looking at a very large portion of the forest, but decided to focus on problem areas since these were the areas that were causing problems. Managers found that the data to support safety or environmental concerns were lacking in both strength and numbers and hence primarily was a social issue.

Within their forest plan were standards and guidelines that allowed them to create non-motorized areas. Managers found NEPA to be inadequate tool to deal with purely social issues. Part of this difficulty was the fact that the group who was working on the amendment was removed from the realities of conditions in the field. Overall, the outcome of the process has led to reduced conflict and compliance.

Management felt it important to have a strong and clear proposal with alternatives that was supported by line officers before going to public for input and beginning the NEPA process. The informational meeting with write-in comments was the preferred avenue for soliciting public comment. It reduced grandstanding and conflict and increased productivity. A free mandatory permit system was implemented in one highly used area. Its purpose was to provide education on boundaries and mutual co-operation to users as well as enforcement capabilities for field rangers. They have drawn on permitees and volunteers to help with signing and education. The forest dealt with early and late season resource damage by issuing an amendment to the forest plan that defined conditions suitable for snowmobile use and minimum snow depth requirements.

Appendix B: 2007-2008 Winter Survey Executive Summary

Visitor Profile and Demographics:

- The typical Deschutes National Forest winter visitor is a repeat visitor who has been visiting the recreation area for a long period of time.
- More than three-fifths of the respondents were males, with an average age of 45.5 years. Nearly all of the respondents were Caucasian.
- Most of the visitors reported that they were in a group composed of family, or family and friends.
- Visitors recreated at Deschutes National Forest throughout the year; the majority used the area for winter (91%) and summer (83%) recreation, while three-fifths of the visitors also recreated at the area during the spring and fall seasons.
- The respondents typically spent a little less than two weeks at the Deschutes National Forest area each winter, and slightly over five weeks at the area during other seasons.
- The visitors were categorized into two distinctly different user groups, based on the activity they participated in on this trip to Deschutes National Forest. The two groups were:
    - Non-motorized Users (mostly people skiing/snowshoeing/etc.); nearly two-thirds of the respondents were of this type.
    - Motorized (mostly visitors who were snowmobiling), the remaining respondents belonged to this group.
- Both non-motorized and motorized users included a much higher proportion of males.

Satisfaction of Experience, Services and Facilities:

- The majority of the visitors rated their overall satisfaction with their visit to the Deschutes National Forest area very highly, with over four-fifths rating their experience 8 or higher on a 10 point scale.
- The highest quality levels for the five Meaningful Measures satisfaction domains were seen for the recreation setting.
- Non-motorized visitors reported higher satisfaction scores for three of the five satisfaction variables (health and cleanliness, condition of facilities, and trail conditions).

Place Attachment and Reasons for Recreating:

- Most Deschutes National Forest visitors feel that Deschutes National Forest is a good place to do the outdoor activities they enjoy. They were less likely to go to the National Forest for the reason of spending more time with their companions.

- The most important reasons or motivations for visiting the Deschutes National Forest area were to experience natural surroundings and to be outdoors and get away from the regular routine.
- Physical exercise and challenge also played a role in the visitors' reasons for recreating at Deschutes National Forest areas.
- Both motorized users and non-motorized visitors were most likely to be at the Deschutes National Forest because it was a good place to do the outdoor activities that they enjoyed.

Activity Participation and Primary Activity:

- The respondents in this study were participating in three main recreation activities:
  - Cross country skiing
  - Snowmobiling
  - Snowshoeing , sledding/tubing and other non-motorized recreation activities
- The primary activity reported by these respondents also fell into the same three categories:
  - Cross country skiing
  - Snowmobiling
  - Snowshoeing , sledding/tubing and other non-motorized recreation activities
- Most respondents reported that if their primary activity was not available during this visit they would go somewhere else to do the same activity, which portrays an activity-driven visit. About 12% of the visitors said they would stay at Deschutes National Forest and participate in another activity.
- The vast majority of visitors did not use a commercial guide for the activity they participated in at the Deschutes National Forest.

Potential Problems:

- Respondents were asked how often they encountered, and how much they were bothered by, various potential types of interactions between motorized and non-motorized users. All user groups frequently heard snowmobiles and smelled their exhaust. However, the non-motorized users were much more likely to be bothered by these interactions.
- Motorized users were more sensitive to recreation courtesy issues; they were more likely to have observed and been bothered by these problems.

Crowding:

- Most respondents saw about as many people as they expected or a little less while recreating at the Deschutes National Forest area, and most felt not very crowded at the trailhead or beyond the trailhead.

- Non-motorized users and motorized users felt about the same degree of crowding by either skiers/snowshoers/snowboarders or snowmobilers at both the trailheads and beyond the trailheads.

Opinions about Winter Activities at Deschutes National Forest:

- Although conflict is low at this time, results show that there are potential conflicts between different user groups at Deschutes National Forest. Most respondents agreed that it is generally acceptable to have skiers, snowshoers, snowboarders use areas within the Deschutes National Forest area, but their attitudes toward snowmobiling and sledding/tubing in the same area were ambivalent.
- Respondents generally thought that skiers, snowshoers and snowboarders are not the same kind of people as snowmobilers.
- In general, non-motorized visitors were less supportive of anything related to snowmobiling.

Appendix C: Values Meeting with Forest Staff

Prework Questions

What kind of experiences does the public seek by recreating in the winter?

- Adventure, thrill seeking
- Different from the norm
- Quiet, solitude
- Marked and maintained trails
- Family time
- Scenery
- Exercise
- Time outside, nature
- Social time w/ group
- Practice skills
- Separate areas
- Adequate parking
- Ski. snowshoe opp 2-5 miles from TH
- Snowmobile play areas
- Long distance snowmobile trails
- Diversity of landscape
- Off-forest amenities, convenience
- Affordable
- Good weather, climate
- Good snow conditions
- Access and location – central
- Community marketing to bring people here

What kinds of winter activities occur here?

- XC-skiing
- Backcountry skiing
- Snowshoeing
- Snowmobiling
- Winter camping
- Sledding/snow play
- Dog sledding
- Ski jouring
- Ski mountaineering
- Winter lodges
- Scenic driving
- Being in snow
- Downhill skiing/riding
- Events
- Extreme sports
- Ice climbing
- Guided opportunities
- Family – opp for everyone (on and off forest)
- Not snow based – mtn biking, bird hunting, lava tubes, fly fishing Big game hunting

What is unique about the forest?

- Easy access
- Good snow – consistent
- More open, x-country travel
- Facilities
- Parking
- Trail system
- Community influence
    - Chamber – marketing, selling forest opp
    - Volunteer support
    - Watchdog groups
    - Political pressure
    - Grant opportunities
- Variety of opp on and off forest, town vs. forest
    - Urban interface
    - Backyard
- Geologic features – monument, volcanoes
- Scenic byways

How does winter rec benefit the forest?

- Helps create support for the forest – stakeholders, grants, volunteers
- Quality of life – attracts people who enjoy outdoor lifestyle, top quality employees
- Forest sustainability

How does winter rec benefit local economy?

- Visitors purchase supplies
- Combine visit w/ activities off forest
- Recreation opp beyond Mt. Bachelor
- Quality of life
- Housing
- Affordable?
- Local org use forest (community college, Parks & Rec)

User Group Values

Group brainstormed various values for winter user groups and then used dots to indicate which values were most important to each group.

Snowplay

Top Values:

- Family connection, social
- Low cost
- Close to parking

Other values:

- Safety
- Amenities and facilities (toilets, warming huts)
- Close to town
- Designated parking
- Thrill seeking, sense of adventures
- Not as restrictive as commercial snowplay areas (e.g. Mt. Bachelor)

Who are they?

Families, groups

More intermittent
Holidays
Kids, youth groups
Locals

Snowmobile assisted skier/snowboarder (hybrid)
Top values:

- Untouched snow
- Backcountry
- Solitude, away from crowds
- Extreme
- Access

Other values:

- Touring opp
- Transportation, not recreation (snowmobiles)

Who are they?
Crossover alpine
Younger
Move here for rec opp
Year-round activities
Not as much discretionary income

Motorized
Top values:

- Endless miles of powder
- Easy to extreme
- Adequate parking
- Social/group experience
- Well-marked trails

Other values:

- Family experience, groomed trails
- Hill climbing, highmarking
- Guides, rentals
- Facilities – warming huts, sno-parks, trails
- Maps and signs

Who are they?
Families
Boomers
Extreme riders – mostly younger
Year-round motorized
Middle-upper class
Not skiers
Passionate, dedicated – volunteers, well supported groups
Local, State, Pacific NW

Dog sledders/Ski Jouring
Top values:

- Connectedness w/ pet, bonding

- Groomed trails
- Long trails, cover miles

Other values:
- Competitions, training
- Sightseeing
- Quiet, solitude

Who are they?
Dog lovers
Guided, commercial
Serious trainers
Competition
Middle class
Local teams, some statewide

Snowshoers
Top values:
- Sightseeing, scenery and wildlife
- Be outside
- Snow hiking
- Access
- Solitude
- Not a lot of skill
- Marked trails

Other values:
- Low cost
- Easy
- Don't need a trail
- Family, kids
- Not as demanding
- Social
- Dogs
- Destination
- Not crowded
- Adventure
- Snow camping

Who are they?
Families
Seniors, Boomers
Transitional skiers
Not as expensive
Group, guided opp – interp
Locals
Easy for non-locals to do

Skiers - broken into 4 groups
Common values:
- Untracked snow
- Solitude

- exercise

Traditional top values:
- Blue diamond trail
- Untracked snow
- Solitude

Other values:
- Ungroomed
- Majority of skiers
- "Swampy" skier

Backcountry top values:
- remote, solitude
- undisturbed

Other values:
- get away
- challenge
- views, scenery

Groomed top values:
- groomed trails
- exercise
- easier, beginner, user-friendly
- social

Other values:
- athletes – training
- skate skiers
- classic
- dog skiers
- no trail fees
- kids
- not as demanding

Extreme top values:
- thrills
- untracked snow
- solitude

Other values:
- yo-yo's
- elevation
- get away
- scenery
- exercise
- similar to hybrid

Who are they?
Anybody
Full economic range
Young to old
Families
More educated
"Tree hugger"

Don't like motorized
Locals, west coast, destination

Misc Winter Users (snow kiters, paragliders, mountaineering)
Top values:

- challenge
- access
- outside the norm
- "summer on snow"

Other values:

- solitude

Who are they?
Younger
Locals, State

The group looked at similarities across user groups. Similar values include:

- access
- untracked snow
- social, family time
- quiet, solitude

Resource Concerns
The group brainstormed resource concerns related to winter recreation. These include:

- water quality
  - soils and erosion
  - fuel spills
  - changes to hydrologic conditions
- air quality – snowmobile exhaust
- watershed and Wilderness – increase in impacts, illegal use
- early season moto use – topping trees, soil compaction
- roads – early/late season moto use on dirt, mud bogging
- recreation impacts to habitat fragmentation, loss; year-round impacts, no break from recreation use
- trails, corridors make it easier for predators to travel
- presence of humans, impacts to wildlife
- garbage
- riparian and other vegetation impacts
- crossover summer use
- ungulates, winter range
- soundscapes
- viewsheds

Impacts to wildlife:

- Fisher – candidate for Federal listing
- Marten (and Fisher) – year-round coniferous zone
- Predators – cougars, bobcats, coyotes – travel corridors, confrontations?
- Spotted owls – begin courtship in early March, disturbance from grooming
- Boreal owl, Boreal habitat – year-round
- Subnivean species – rabbits, rodents

- Eagles – courtship begins in early Jan
- Grouse – winter habitat ay higher elev
- Wolverine – winter habitat at higher elev, some x-country travel
- Deer and elk – winter ranger, some year-round herds
- Great Grey owl – early courtship season, hunt in open areas
- Bear dens – coniferous zone

Northwest Forest Plan:

- Late successional reserves
- Riparian reserves
- Aquatic conservation strategy

Appendix D: TUG Values Meeting Notes

Objective: To gather input from TUG representatives about values for winter recreation on the Deschutes National Forest.

Exercise 1: Values for Winter Recreation
The group brainstormed responses for each questions and used sticker dots (one per question) to choose which response best described what they value about winter recreation opportunities on the forest. Responses that two or more people chose are in bold below.

Question 1: Outstanding winter recreation opportunities on the forest

- Good trails
- Snow
- World class vistas
- Easy access
- Close to town
- Variety – types of trails
- Attempt at good FS management
- **Expansive area – lots of room**
- **Away from parking lot - get a feeling of aloneness, one with nature, special feeling of completeness**
- Church of the great outdoors, spiritual connection
- Incredible scenery
- Natural beauty
- Well signed system
- Good early and late snow
- Longer season than other places
- One of largest trail systems in the State
- 1st dog use area in the State
- Weather

Question 2: How are you satisfied with winter opportunities?

- **Strong grooming program (volunteers)**
- **Can of worms**
- **Ski flat trails, high country, go cross county - wide variety**
- Very satisfied with what we have
- **Unlimited opportunities**
- Sufficient but fearful of reduction
- **Appreciate opportunity for input – give & take**
- **Easy access – close to town**

Question 3: What's missing?

- **Increased population growth, recreation demand, tourism – not enough parking for everyone**
- **Financing for current operations and maintenance**
- No mechanism to fast-track actions to meet needs, solve problems
- Century Dr. is a bottleneck for access
- **Lack of flexibility to accommodate new uses**
- Lack of security with what we have – will it be here for my kids?

Question 4: Perfect solution for all winter recreationists to have a positive experience?

- **Open mind**
- **Working together – users come up with solutions, respect**
- **Each group try out others activity**
- Consistent funding/resources to be sustainable
- Ensuring forests are still there
- FS approves project – users/volunteers/partners get funding
- **Reduce confusion on funding sources (alphabet soup), streamline process**
- Include Deschutes County more

Exercise 2: Mapping

The group completed a mapping exercise where they placed dot stickers on a map and then filled out a sheet about the place where the dots were placed. One dot represented a special place and one dot represented a place where winter recreation could grow. The dot locations will be entered into GIS to create a map of special places and growth potential.

Exercise 3: Discussion about winter recreation growth

The group was asked how much more growth the forest could accommodate and what winter recreation on the forest would look like in 2030.

- More parking areas – dispersed
- 10x more than now
- Pay to play
- Potential/reason to support the opportunity
- Depends on snow
- Gas prices?
- Won't need permit to fill out or purchase
- Alternatives to Century Dr: Rd 45, Sunriver cutoff, 46/13, 42/43
- Freedom
- Still lots of area without crowds – find with a little effort
- Will be crowded, relatively
- Be more flexible to accommodate growth
- Bus to sno-parks
- Mt. Bachelor factor?

Appendix E: Winter Recreation Staff Interview Summary

Highlights of working in winter recreation

- Educating the public
- Appreciating diverse experiences
- Interacting with the public (in the field and at the table)

Things the Forest is doing well

- A very small dedicated workforce is good at leveraging our limited resources to get things done.
- Utilizing volunteers and partnerships (i.e. shelter building, sno-park expansions, trails, grooming, and maps).
- Facilities are generally well maintained (trails, signage, restrooms)
- Meeting users needs (i.e. snowplay park, snowshoe trails)
- Maintaining good relations with the community (public service ethic)
- Providing diverse experience opportunities
- Special Uses

Staff Concerns

- Management doesn't fully understand what's happening on the ground.
- Understaffed and underfunded.
- Growing population = growing use and impacts (overuse)
- Lack of strong and healthy public land ethic. (especially younger generations)
- Management is beyond capacity
- Closure violations (motorized, wilderness, dogs)
- Managing user expectations (providing high quality, accessible experiences)
- Catch up on Planning (develop a sustainable winter recreation program)
- Loosing day to day contact with public
- Safety (within and between user groups, children, vehicles, parking)
- Limited resources (area size, parking, water, air, scenic vistas)

Trends

- increased pressure on resource (more users in same amount of space)
- changing expectations
- climate change (possible reduction in suitable winter recreation land)
- User displacement (users don't find what they expect and change behaviors, a perceived decrease in access to undeveloped experience, solitude, quiet)
- User adaptation (users become more accustomed to changes and shift expectations as a means to cope with change)
- Increase in proportion of aging recreationists
- Youth increasingly disconnected to a land ethic (caring for the land)
- Inconsistency of rising user demands and less funding for programs

What the Forest could do better

- Partnerships, volunteers, grants, etc. (explore creative options)
- Increase public awareness of challenges to managers
- Increase education efforts (especially youth education - 7-12 grade)

- Be more black and white to the public in what we can and cannot not provide (ROS map). (more direct with public – less grey areas – use boundaries that are geographical in nature and that make sense on the ground for both the user and the management)
- Facilitate expansion where appropriate
- Match facilities and services to budgets
- Need management objectives with standards to obtain desired future conditions (monitoring changes in experiences – facilities)
- Use of media – marketing to get education to users more efficiently

Can the forest accommodate more winter recreation?

- Yes.
- Must be in balance with capabilities (currently over capacity)
- If we utilize collaboration, volunteers, planning, and grants
- If we focus on providing what is most enjoyable to most users
- with appropriate regulations
- In certain areas (Crescent, Newberry, Sisters, 12 mile, Metolious)

Sustainable recreation?

- community involvement
- An economic, ecological, and socially on-going conversation with the landscape.
- Which uses belong on the FS? Those with the maximum sustainability.
- dynamic, flexible, adaptable planning
- funding must be there to have adequate presence on the ground
- strong land ethic (responsible use)
- public stewardship of public lands
- Matching of facilities and services provided to budgets
- what we believe the land can handle without detriment in the long run
- needs to address the amount and type of use to occur
- Conflicts are minimal/ manageable
- monitoring program
- separation of uses that don't mix well
- shared use of uses that do mix well
- Take asymmetrical nature of user impacts into account (default to least impact)

Useful products of this process

- A thought provoking discussion on winter recreation resulting in long term strategies for managing current and future use
- Something that captures the unique qualities of different sites (zones, etc.).
- A good guidance document.
- An element of nostalgia in order to be more effective
- Emphasis on family time, clean air and water and healthy in mind, body and spirit
- Emphasis on education and developing strong land ethics and responsible use among current and future users.
- An allocation of land based on ROS allows users to have a reasonable opportunity of meeting expectations
- Prioritizing what we are and are not going to provide and follow through. (i.e. Recreation Niche.)

Appendix F: Winter Recreation User Interview Summary

Winter recreation experience highlights:

- Snow quality is good in relation to other areas
- Weather quality is exceptional (nice in town, winter in the mountains)
- Access (roads, trails, parking)
- Incredible scenery
- Diversity of available experiences
- Solitude

Concerns:

- Unmanaged expansion (i.e. new/improved access w/out proper management standards)
- Dog owners need a more permanent/ appropriate area(s)
- Growing population = growing use and impacts (overuse)
- Kapka Butte proposed sno-park (size)
- Adequate separation/ designation between potentially conflicting user groups
- Lack of community recreation education
- Access – Parking
- Balance of user experiences (developed, un-developed, backcountry)
- Sustainability of air, water, wildlife quality (ensure healthy forest)
- Safety (between and among users)
- Sign Pollution

Aspects of a sustainable winter recreation program:

- Adequate parking and facilities
- Maintenance of trails, shelters, facilities
- Good access
- Separation of uses
- Clear and concise standards and indicators.
- Experiential expectations being met
- Dialog – ongoing communication – mutual respect
- Educating people where to go what they can do, and how they need to be prepared
- Good management processes
- Inter-intra group collaboration for similar use areas (i.e. Winter and summer trails)
- User respect of resource and others experience

Growth:

- Kapka Butte sno-park
- Paulina
- Crescent
- Plow century drive further

Useful products of this process:

- Tie values to indicators, standards and monitoring
- Recreation zones

Other Ideas:

- Sno-park passes available at trailheads
- Stronger winter safety/educational program (avalanche, winter safety)
- If Kapka Butte, then Dutchman Flats non-motorized

- Carpooling service for non-motorized users
- Kapka – Elk Lk. trail?
- Free sno-play areas
- Synthesize winter and summer programs, trails

Appendix G: Demand Analysis

Due to the significant population growth of the Central Oregon area, the Deschutes National Forest is expected to witness an increase in all recreation activities. With the natural amenities and reliable snowfall that grant numerous winter opportunities, the Deschutes is expected to see a high increase in winter activities. This report is focusing on demand for winter activities and briefly discusses settings/opportunities.

Supply

The federal land management agencies account for approximately 94% of all outdoor recreation resources in land acres in Oregon[28]. For winter recreation, federal land is even more dominant due to elevation and terrain. The Deschutes National Forest is a large component of that supply base in Central Oregon.

The 2003-2007 Statewide Comprehensive Outdoor Recreation Plan (2003 SCORP) asked providers to judge the role their agency played in providing these opportunities in what the 2003 SCORP called the Private/Public–Sector Recreation Roles Matrix. The Forest Service, Bureau of Land Management, and Oregon Department of Forestry (ODF) perceive themselves as major providers in motorized trails (including snowmobiling). For cross-country ski trails, the Forest Service, National Park Service, and private sector [generally resorts on Forest Service land] perceive themselves as major providers, with BLM, Army Corps of Engineers, US Fish and Wildlife Service, and counties as secondary providers.[29]

The Oregon Department of Transportation (ODOT) administers a sno-park program at many winter recreation trailheads around the state. Of importance, "While the Sno- Park program is administered by ODOT, the responsibility for recreational facilities, resources, and programs remains with the land manager"[30]. This reinforces the emphasis on the role of the Forest Service in providing these opportunities.

There are more miles of designated snowmobile trails as there are designated cross country ski trails in the state; however, there are many trails that are not designated as cross country ski trails, but can be used for that purpose. In the Central Oregon area (SCORP Region VII), the same pattern exists.

Due to the cost of land acquisition, it is unlikely that private providers are eager to add supply in any significant amount. The Oregon Trails 2005-2014: A Statewide Action Plan (2005 Oregon Trails Plan) emphasized trail linkages between counties and local provides and federal lands[31]. To a large extent, this responsibility of trails is placed on the federal public lands including the Deschutes National Forest.

The Deschutes National Forest is truly a year-round destination as well as the surrounding communities (these are the recreation hubs). There is a significant draw to winter sports in this area, and the forest has one of the most popular destination resorts in the Northwest, Mt. Bachelor. In the forest's Recreation Facility Analysis (RFA) niche bridge, skiing, snowshoeing, and snowmobiling appear to receive as much emphasis as summer activities.

[28] 2003-2007 Statewide Comprehensive Outdoor Recreation Plan. 2003. p. 2-11.
[29] 2003-2007 Statewide Comprehensive Outdoor Recreation Plan. 2003. p. 6-4.
[30] Ibid. p. 6-16.
[31] Oregon Trails 2005-2014: A Statewide Action Plan. 2005. p. 21.

Demand

Population Growth

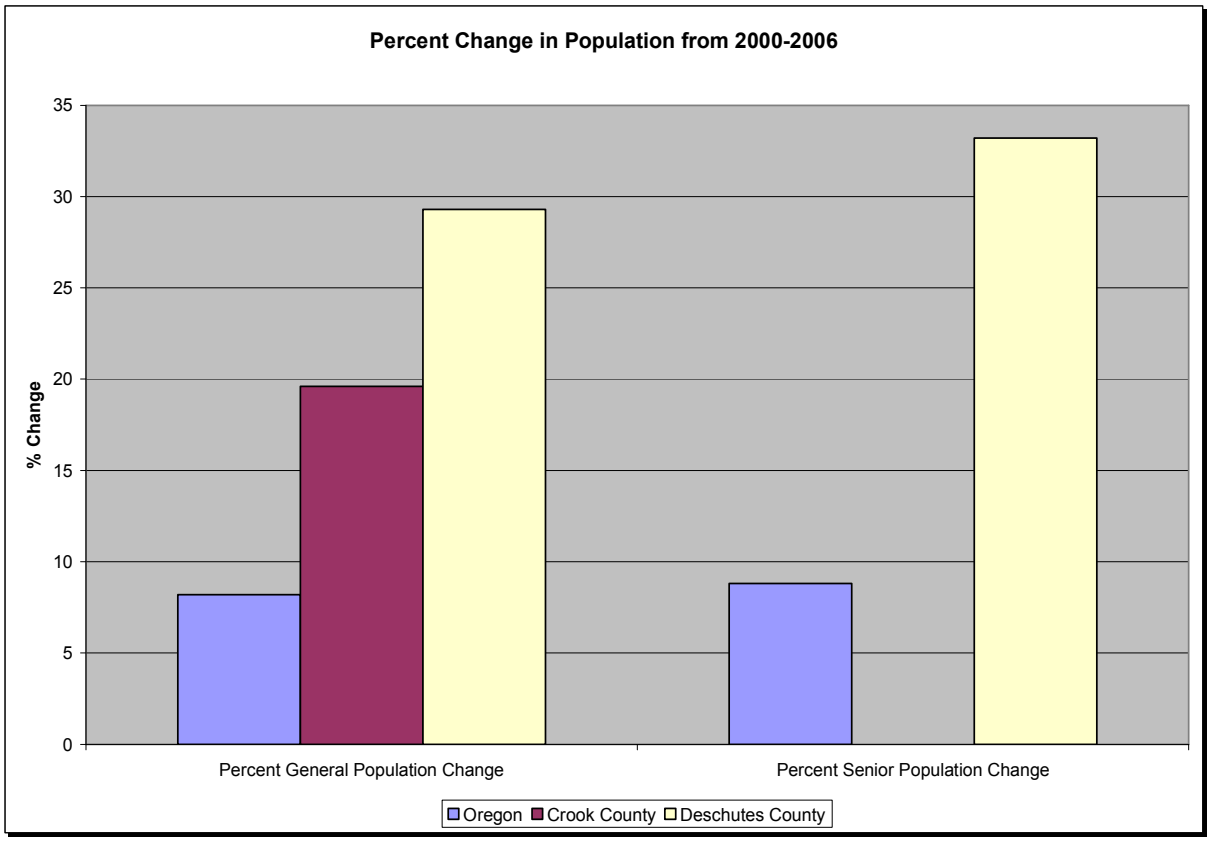
Population growth is the primary driver for outdoor recreation activity growth. "Population has been, is, and will be the major driver of outdoor recreation participation in this country"[32]. Central Oregon is a major hot spot for population growth with Deschutes County continuing to top the US Census Bureau charts for fastest growing counties in America. This large growth in population can in part be attributed to the natural amenities the area has to offer. These natural amenities are driving factors for people moving to the state from out of the area, especially with retirees. "In recent years, amenities such as scenic beauty, climate and recreational opportunities have lured large numbers of people to areas of the state such as Bend, Ashland, and the south coast"[33]. Unlike the Pre-Boomers who flocked to the sunny and warm climates of the southern parts of the US, there is a higher priority for Boomers to be near winter recreation opportunities and to have four seasons[34]. These factors make the Central Oregon area a prime destination for this very influential demographic. Additionally, "Retiree recruitment has become an acknowledged economic development strategy"[35]. Therefore, the financial opportunities will promote the continuation of this trend and amplify the population growth.

Along with this population growth, participation in outdoor recreation will increase. The Deschutes National Forest is located in a hot spot for recreation activities and issues as Deschutes and Crook counties were identified several times as high priority counties in the 2008-2012 Oregon Statewide Comprehensive Outdoor Recreation Plan (2008 SCORP). As mentioned above, the senior populations of Oregon and the target counties are increasing significantly. Previously, participation in outdoor activities decreased with age; however, in terms of Boomers and activity participation, "It is difficult to quantify the size of the net effect, by the general direction of the effect is that there will be more demand for activities than in the past."[36]

Figure 1 shows this trend in increasing population figures with the focus on Central Oregon. The state as a whole and the two primary counties of Crook[37] and Deschutes are all showing significant population increases in overall population and the senior population (aged 65 and over).

[32] Cordell, Ken. Outdoor Recreation for 21st Century America. 2004. p. 21.
[33] Outdoor Recreation in Oregon: The Changing Face of the Future: The 2008-2012 Oregon Statewide Comprehensive Outdoor Recreation Plan. p. 35
[34] Ibid. p. 52.
[35] Ibid. p. 35.
[36] Ibid. p. 32.
[37] Senior population figures were not available for Crook County.

Figure 1 Percent Change in Population from 2000-2006 for State of Oregon, Crook County, OR and Deschutes County, OR.†

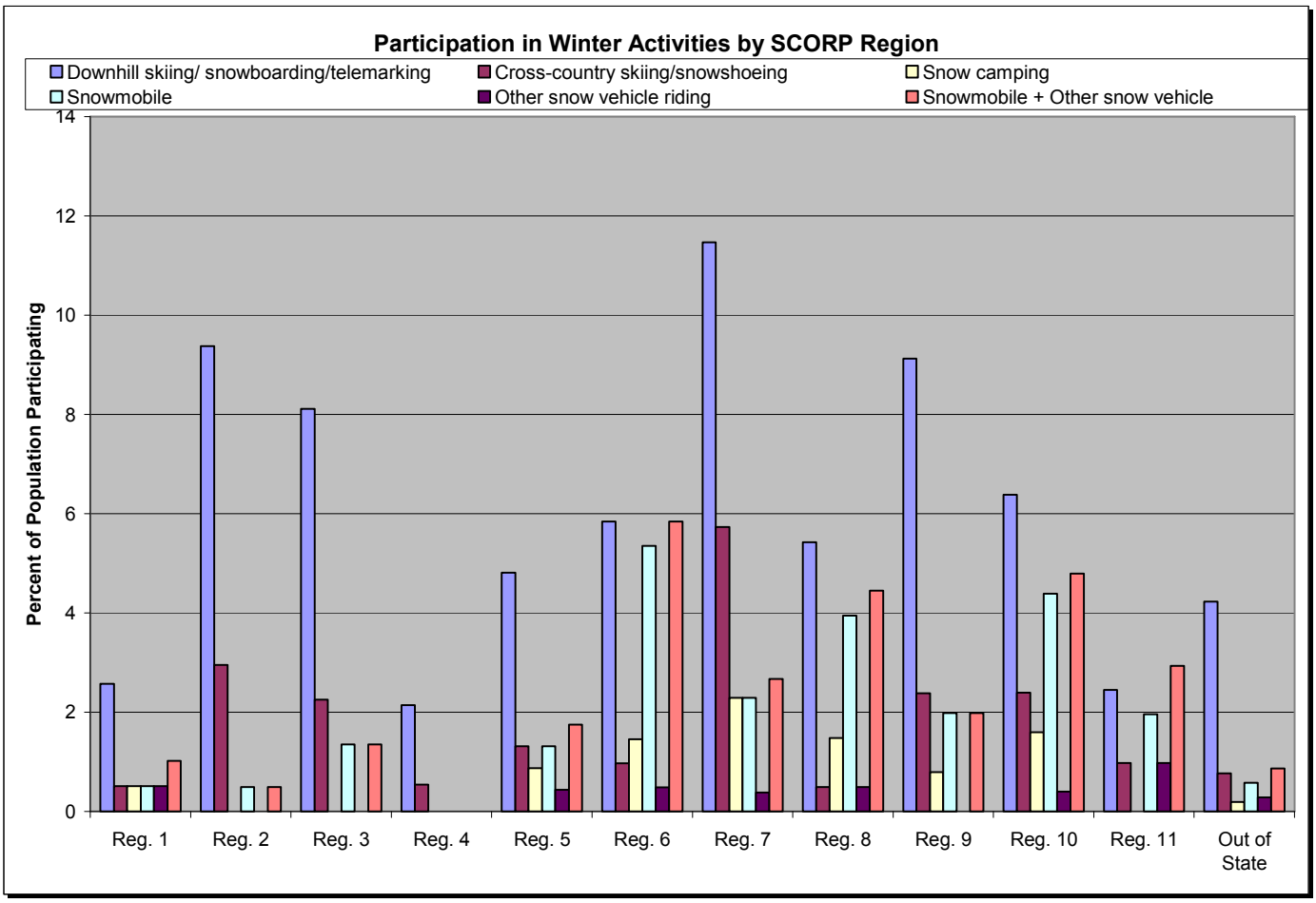


Current Conditions

The table below has participation rates for activities broken down by SCORP region. The general pattern for the state shows a higher participation in cross-country skiing/snowshoeing than in motorized snow travel. This pattern also holds true in Region VII, with twice as many participants in cross-country skiing/snowshoeing than motorized snow travel. The 2005 OR Trail Study also shows a similar pattern of participation[38].

The data also suggests that the frequency of participation in snowmobiling is higher than those who participate in cross country skiing which leads to a high number of activity days. In other words, there are less people who snowmobile, but the number of days spent snowmobiling is close to the number of days spent cross-country skiing and snowshoeing.

[38] Oregon Trails 2005-2014: A Statewide Action Plan. 2005. pp. 15-24.



Activity Growth

Given that the number one driver of recreation demand is population growth, it is no surprise that these winter activities will be increasing as well. However, there are also factors beyond population growth that can increase participation such as the popularity of particular activities, demographics, and opportunities (adequate supply).

National Trends

Snowmobiling is witnessing a strong growth, as the National Survey on Recreation and the Environment (NSRE) data shows snowmobiling growing significantly. A Montana Tourism report suggests that the rise in registered motorized off-road recreation vehicles in the state [MT] can be attributed to the "aging Baby Boomers, who have time and money to spend on leisure activities, and who are beginning to experience physical limitations affecting their ability to enjoy strenuous non-motorized recreation activities"[39].

The NSRE data shows a moderate increase in cross-country skiing. The NSRE data does not offer a growth rate for snowshoeing; however, the Outdoor Industry Foundation (OIF) states that snowshoeing

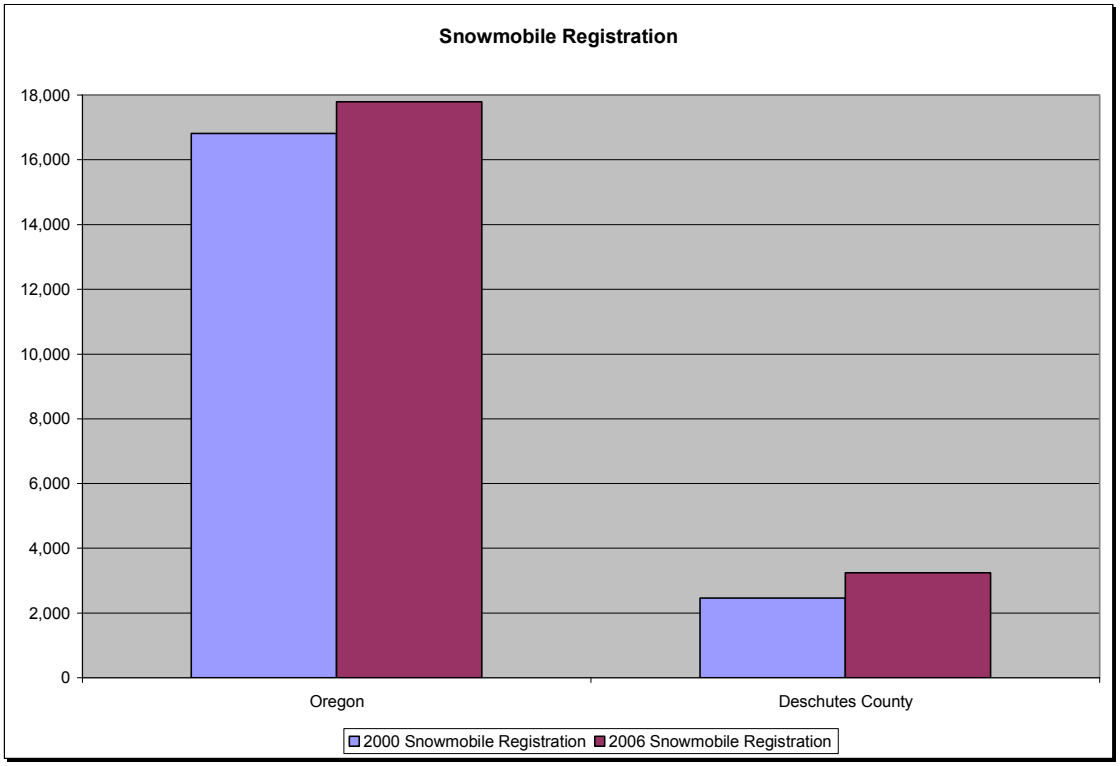
[39] Montana Tourism and Recreation Strategic Plan 2008-2012. 2007. Chapter 2, p. 18.

has one of the highest increases in participation incidence over its eight year study period with an 83% increase[40]. According to a representative from the Snowsports Industries America (SIA), research suggests that there is a strong growth in cross-country skiing and especially snowshoeing. The OIF (and SIA concurs) suggests that activities that are easy to learn, "done in a day", and are less commitment heavy, like snowshoeing, have broader appeal and will grow more rapidly.

Oregon Trends

From the 2003 SCORP report, Oregon saw a 97.2% change in snowmobiling from 1982-2002[41]. The following key points are from registration statistics[42] for snowmobiles:

- From 2000 to 2006, the state of Oregon has seen a 6% increase in snowmobile registrations (Deschutes county has seen a 32% increase).
- Deschutes and Crook counties have about 20% of registered snowmobiles in the state with Deschutes county accounting for 18%.
- From 1990-2004, Oregon sales of Class I (quads) and Class III (motorcycles) OHVs have increased over 400%.



The 2005 OR Trail study expressed a need for more sno-parks as current sites are at capacity.

Unfortunately, the 2003 SCORP report did not breakdown trail activities to define a change in cross country skiing and snowshoeing; therefore, there are no equivalent numbers available for those activities.

With the focused attention of the 2008 SCORP on the Pre-Boomer and Boomer generations, respondents were asked to rank activities they believe they will participate more in over the next 10 years. Within the

[40] Outdoor Recreation Participation Study. Outdoor Industry Foundation. 2006. p.11
[41] 2003-2007 Statewide Comprehensive Outdoor Recreation Plan. 2003. p. 4-12.
[42] Oregon Department of Transportation—Vehicles registered to out-of-state addresses are not included.

top 10 activities for Boomers and Pre-Boomers in terms of percent increase in number of days in the next 10 years, winter activities made the number 1, 2, and 8 places:

1. Snowshoeing- 404%
2. Cross Country Skiing- 247%
8. Snowmobiling- 145%

Snowshoeing tops the charts, and could possibly correlate to the aforementioned "done in a day" concept. However, all of these activities are expected to grow with this key demographic.

Settings and Opportunities

In the 2003 SCORP, one section of the document speaks to Outdoor Recreation Resource Settings.[43] This section breaks out specific activities into nine different settings and summarizes the data in a table. Non-motorized snow activities were combined as one activity, and demonstrated a high propensity towards a highly developed (non-urban) setting, which would capture the ski resorts. Looking at the raw dataset of the survey, the downhill skiing respondents dominated this response, and thus influenced the outcome. Additionally, the question asked the respondent to list their favorite activity that they participated in the past three months; therefore, information specific to winter activities was limited depending on the time of year the respondents answered the survey. This does show a high response for ski resorts and downhill skiing. Concerning snowmobiling, in a separate section the reports shows that about "53% of snowmobile use was reported to take place on designated snowmobile trails" and the remaining off trail.[44]

The International Snowmobile Industry Association (ISMA) has the following information available:
The top five reasons people snowmobile are:

1. To view the scenery
2. To be with friends
3. To get away [from] the usual demands of life
4. To do something with my family
5. To be close with nature

Additionally, the study suggests that snowmobiling is a social activity, and did not speak to experiences of solitude.

According to a representative from the Snowsports Industries America (SIA), the following information was gleaned from their existing research:
Cross Country Skiing:

- Backcountry is a great venue and preferred
- There generally is not as much demand for groomed skate ski opportunities
- Parallel tracks created by users are sufficient
- Well marked trails are recommended

Snowshoeing

- Prefer trails, especially those around resort/warming hut
- Well marked trails are recommended
- Have options especially low strenuous options

Alpine backcountry (telemark, backcountry snowboarding, etc.)

- No trails/signage needed
- "Blazing" their own trails is part of the experience

[43] 2003-2007 Statewide Comprehensive Outdoor Recreation Plan. 2003. p. 3-25.
[44] Ibid. p. 3-19

From the 2005 OR Trail report[45], non-motorized trail users were asked what kind of trails they preferred. Short, day-use trails; trails to destination; and loop trails were ranked the highest. Multi-day trails were ranked the lowest. Additionally, trails that were more remote were described as their favorite. The report also asked about barriers to recreation with time being the biggest for all users, and proximity to trails being a major obstacle for motorized users. Non-motorized users generally have to travel far less than motorized users to find trails. The following key message that can be applied to all trail users: "These findings suggest that efforts to provide a compressible trail experience – especially one taking less time in getting to the trail and other non-trail activities like seeking information, packing, and securing permits – would be welcomed by users"[46].

[45] Oregon Trails 2005-2014: A Statewide Action Plan. 2005. p. 279. Non-motorized trail user category was not exclusive to winter use, as it is open for all non-motorized trail use. These questions were not asked for motorized trail users.
[46] Ibid. p. 277.

Appendix H: Existing Condition Map

This document is a separate file.

Appendix I: Desired Condition Map

This document is a separate file.

Appendix J: Winter ROS

This document is a separate file.

Appendix K: Monitoring Recommendations

Indicator: Percent of visitors satisfied with winter recreation opportunities.
Method: Question in NVUM surveys about overall satisfaction and by ROS class.

Indicator: Availability of untracked snow.
Methods: Field reports by volunteers and forest staff. Question in NVUM survey about the availability of untracked snow.

Indicator: Percent of visitors who feel physically challenged during their visit to Alpine Challenge areas.
Method: Question in NVUM survey about opportunities for challenge by ROS class.

Indicator: Availability of parking.
Method: Field reports by volunteers and forest staff about availability of parking with focus on peak use days.

Indicator: Acres (% of forest) by ROS class.
Method: ROS mapping every 5 years.

Indicator: Air quality.
Method: Reports from existing air quality monitoring stations in vicinity. Devise a schedule to randomly sample days throughout winter season.

Indicator: Managerial capacity.
Method: Annual staff and partner survey about managerial capacity.